24 MIND. *A civilised society: mental health provision for refugees and asylum seekers in England and Wales.* London: MIND, 2009.

25 Priebe S, Sandhu S, Dias S, et al. Good practice in health care for migrants: views and experiences of care professionals in 16 European countries. *BMC Public Health* 2011;11:187.

26 Priebe S, Fakhoury W, Watts J. Assertive outreach teams in London: patients characteristics and outcomes. *Br J Psychiatry* 2003;183:148–54.

27 Migrant & Refugee Communities Forum & CVS Consultants. *A shattered world. The mental health of refugees and newly arrived communities.* London: Migrant & Refugee Communities Forum, 2002.

28 Wright NMJ, Tomkins SNE. How can health services effectively meet the health needs of homeless people. *Br J Gen Pract* 2006;56(Pt 525):286–93.

29 Silove D, Ekblad S. How well do refuges adapt after the resettlement in Western countries? *Acta Psychiatr Scand* 2002;106(Pt 6):401–2.

The mental health risks of economic crisis in Spain: evidence from primary care centres, 2006 and 2010

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Background: Nearly all European countries have been affected by the economic crisis that began in 2007, but the consequences have been among the worst in Spain. We investigated the associations of the recession on the frequency of mood, anxiety, somatoform, alcohol-related and eating disorders among those visiting Spanish primary care settings. **Methods:** Primary care physicians selected randomized samples of patients attending primary care centres representing Spain's consulting populations. A total of 7940 patients in 2006–07 and 5876 in 2010–11 were administered the Primary Care Evaluation of Mental Disorders (PRIME-MD) instrument to diagnose mental disorders. Multivariate logistic regression models were used to quantify overall changes in the frequency of mental disorders, adjusting for potential socio-demographic differences in consulting populations unrelated to economic factors. **Results:** Compared with the pre-crisis period of 2006, the 2010 survey revealed substantial and significant increases in the proportion of patients with mood (19.4% in major depression), anxiety (8.4% in generalized anxiety disorder), somatoform (7.3%) and alcohol-related disorders (4.6% in alcohol dependence), all significant at $P < 0.001$, but not in eating disorders (0.15%, $P = 0.172$). Independent of observed risks of unemployment [odds ratio (OR) = 1.72, $P < 0.001$], we observed a significantly elevated risk of major depression associated with mortgage repayment difficulties (OR = 2.12, $P < 0.001$) and evictions (OR = 2.95, $P < 0.001$). About one-third of the overall risk in the consulting population's attendance with mental health disorders could be attributed to the combined risks of household unemployment and mortgage payment difficulties. **Conclusion:** Recession has significantly increased the frequency of mental health disorders and alcohol abuse among primary care attendees in Spain, particularly among families experiencing unemployment and mortgage payment difficulties.

Introduction

Nearly all European countries have been affected by the economic crisis that began in 2007, but the consequences have been among the worst in Spain. In the decade preceding 2007, Spain's economy was among the fastest growing in Europe, averaging annual gross domestic product (GDP) growth rates above 5%.[1] Signs of economic collapse were evident when the housing market fell at the end of 2007. Spain's debt-driven construction boom came to a halt, leading to a rapid reversal of fortune as the country's stock market deflated from 125% of GDP in November 2007 to 54% 1 year later[2] and its economy contracted leading to job losses, housing repossessions and large government budget deficits.[3] At the beginning of 2010, over

20% of working-age Spaniards (or 4.5 million people) were unemployed, a rise from 8.5% in 2006 and the highest rate in Western Europe.[4]

Public health officials have raised concerns that recession on this scale, and its economic consequences of unemployment, debt and losses of income, have potential health consequences.[5] The fear and insecurity generated by the anticipation of unemployment is also associated with poor physical and mental health, in some cases even more than with actual job loss.[6–8] However, some analysts suggest that there may be counter-intuitive health benefits during hard economic times, as people may smoke and drink less and potentially walk instead of drive while road traffic diminishes as transportation due to commercial purposes (cargo) declines.[9–13] One

study of mortality rates in Spain found suicides tended to rise during recessions (countercyclical) but overall mortality rates tended to rise during economic upturns but decrease during downturns (pro-cyclical).[12] Overall, the effects on health of unemployment vary considerably, with the worst outcomes observed among single men, those lacking social support, and in countries with weak labour market programmes or family support systems.[14]

There are initial signs that suicide rates among those aged under 65 years have risen in Spain, from 5.16 per 100 000 in 2007 to 5.56 per 100 000 in 2008, reversing reductions that had taken place since the early 2000s.[15,16] However, such data are unlikely to capture the full picture of mental health effects of recession. Based on Swedish data, for example, Wasserman and colleagues[17] estimate that each suicide corresponds to about 10 failed suicide attempts and between 100 and 1000 cases of major depressive disorder.

In this study, we sought to address two questions: (i) has there been a rise in mental health disorders during the period of financial crisis? and (ii) to what extent do economic risk factors account for these rises? Based on previous studies of the economic risks of recession to mental health, we hypothesized that the share of patients attending general practitioners (GPs) who had mental health problems would increase, and among them the greatest increases would be among single, unemployed men, who would lack social support, as well as persons who lost homes and faced high levels of debt, who have experienced the greatest stress as observed in prior studies of recessions.[18] To test our hypotheses, we drew on psychiatric morbidity data of patients attending Spanish GPs. Using a previously validated screening instrument [Primary Care Evaluation of Mental Disorders (PRIME-MD)],[19–21] we identified patients with psychiatric disorders in 2006, before signs of economic decline were evident in Spain, and again in 2010, after Spain's economy was engulfed by recession.

Methods

In the first survey, a nationwide sample of 2000 primary care physicians, proportionately distributed by regions, provinces and health centres within Spain's 17 autonomous communities, was selected. A total of 1925 physicians (96.2%) agreed to participate. Each practitioner was asked to select four patients, randomized by day of week and timetable, so as to represent the consulting population. In case of refusals, the next patient was invited to participate. In the second survey, 1300 primary care physicians were included. A total of 1175 (90.3%) agreed to participate, each inviting five randomly selected patients to participate. Patient information was collected by the GPs using a case report form (CRF). GPs were instructed in the use of the CRFs, which were presented in an easy-to-use computerized format specifically designed for the study. The CRFs included: data on demographic features (gender, age, education, marital status and whether the patient lives alone); socio-economic and work-related variables (employment status, family member employed, housing repayment difficulties, housing eviction); clinical characteristics [body mass index (BMI), perceived health status]; a structured psychiatric interview for Primary Care (PRIME-MD) for the mental health diagnosis; and data about chronic medical diseases. Patients were administered the PRIME-MD, a computerized brief diagnostic assessment tool based on Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) diagnostic criteria.[20–22] The questionnaire assesses five groups of mental disorders commonly observed in primary care settings—mood, anxiety, somatoform symptoms, alcohol-related and eating disorders—with a sensitivity of 81.4% and a specificity of 66.1% in Spain.[19] A total of 7940 patients were surveyed between January 2006 and January 2007 (of which 7929 had complete data), with a further 5876 patients between February 2010 and April 2011.

The analysis was carried out in two steps. In the first step of the analysis, we used multivariate linear probability models to evaluate trends in several measures of psychiatric morbidity across survey waves. To measure changes, we estimated the 'period effect': the difference between the survey in 2010 and 2006, modelled as a dummy variable (year 2006 = 0; 2010 = 1). These regression models were then adjusted for potential differences between the two survey samples that were unlikely to have been linked to the financial crisis. As shown in Supplementary Appendix 1, there was no statistically significant difference in the mean age of the survey population ($P = 0.12$), although there were more men who were unmarried. However, the degree of these changes was very small in practical terms. Nonetheless, to correct for such potential differences we included adjustments for age, sex, marital status, educational attainment and urban/rural residence. The results from PRIME-MD were used to determine the presence of major and minor depressive disorders, generalized anxiety disorder, panic disorder, dysthymia, multisomatoform disorder, alcohol abuse and alcohol dependence. As a control group, we also evaluated bulimia (non-purging; although we could have also used other categories of eating disorders), as we hypothesized that the prevalence of this disorder among those attending primary care clinics would not be affected specifically by economic recession.[23]

Thus, our adjusted model for evaluating survey trends was as follows:

$$\Pr(\text{Mental Disorder} = 1) = \alpha + \beta_1 \text{Year} + \beta_2 \text{Age} + \beta_3 \text{Male} \\ + \beta_4 \text{Married} + \beta_5 \text{Urban} + \beta_6 \text{Educ} + \varepsilon \tag{1}$$

Here, year is a dummy variable that estimated the changes in the probability of psychiatric morbidity in the year 2010 vs. 2006. The model then includes covariates of age, gender, marital status, urban/rural status and educational attainment (primary, secondary and tertiary education).

In the second step of the analysis, we investigated potential determinants of the observed changes in psychiatric morbidity. Specifically, we tested the role of several socio-economic factors, including individual unemployment and household unemployment. We also evaluated the cross-sectional associations of housing foreclosure and difficulties repaying mortgages with psychiatric outcomes, although these data were only available for the second wave. Population attributable risks (PARs) for the study sample were calculated using Levin's formula, expressed as a function of exposure prevalence in the population and the relative risk: $100 \times [p_e \times (RR - 1)/p_e \times (RR - 1) + 1]$.[24] All models were evaluated using STATA v10.2.

Results

Pre- and during financial crisis trends in mental health diagnoses

Figure 1 displays the percentage point change in the frequency in the sample population of mental disorders identified using the PRIME-MD instrument between the 2006 and 2010 samples, both unadjusted and correcting for differences in the sample and potential confounders, including age, gender, marital status, BMI and unemployment. Substantial increases occurred in the frequency of mood, anxiety, somatoform and alcohol-related disorders (all $P < 0.0001$), but not eating disorders ($P = 0.172$). As summarized in Supplementary Appendix 2, unadjusted prevalence rates in the year 2006 and 2010 were, respectively, for major depression 28.9 and 47.5%, minor depression 6.4 and 8.6%, dysthymia 14.6 and 25.1%, generalized anxiety disorder 11.7 and 19.7%, multisomatoform disorder 14.8–21.4%, panic attack disorder 9.7 and 15.7%, alcohol dependence 0.2 and 2.7%, alcohol abuse 1.4 and 6.2%, and bulimia 0.3 and 0.4%. In adjusted terms, the greatest percentage point rise in frequency was for major depression (19.4 percentage point increase) and dysthymia (10.8), both mood disorders. The frequency of generalized anxiety disorder
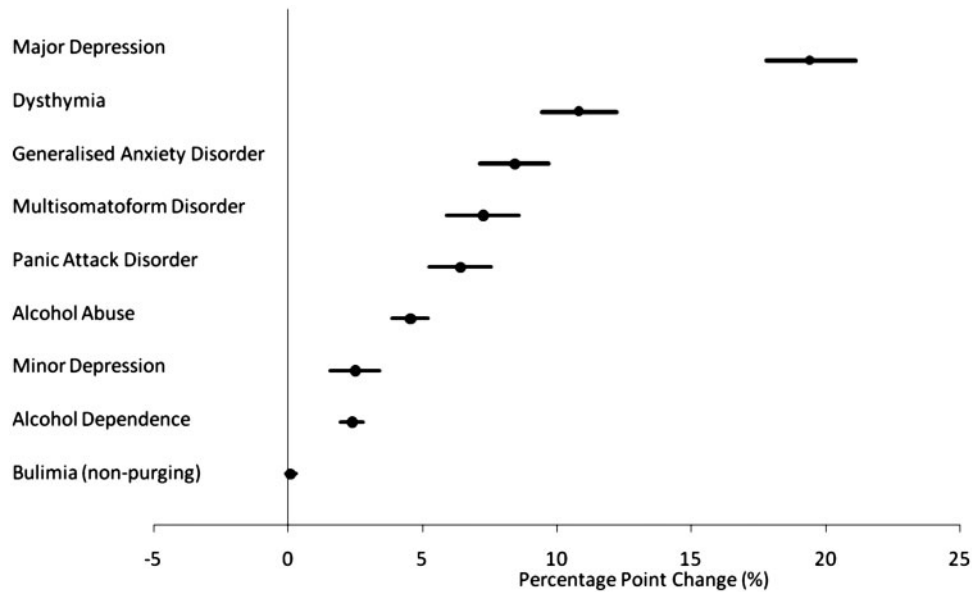
Figure 1 Percentage point increase in diagnoses of mental health disorders among primary care attendees, Spain, 2006–10. Results presented from nine linear probability models used to estimate the changes between 2010 and 2006 with a dummy variable (year 2006 = 0; 2010 = 1). 95% confidence intervals presented as line intervals. All models are adjusted for potential confounding changes in the surveyed sample, including age, sex, marital status, educational attainment and urban residence. All results are significant at $P < 0.0001$ except Bulimia ($P = 0.172$). See Supplementary Appendix 3 for full tabular results of 27 unadjusted and adjusted models

and panic attack disorder increased by 8.4 and 6.4 percentage points, respectively. The percentage point changes to the frequency of alcohol dependence and abuse were 4.6 and 2.4%, respectively, although in relative terms [measured by odds ratios (ORs)] these observed increases were much greater because the baseline frequencies of these conditions in 2006 were much lower than the other conditions studied which had large percentage point changes (Supplementary Appendix 4, OR = 12.2 and 4.6, respectively).

Determinants of mental health disorders among primary care attendees

Table 1 shows the results of models adjusted for education and unemployment by survey year. As shown in the Table, the magnitude of the associations of unemployment and education with major depressive disorders was similar before and during the financial crisis [test of effect homogeneity, $\chi^2(1) = 0.66$, $P = 0.415$]. Hence, the rise in these disorders seems mainly to correlate with increased unemployment rather than a change in the impact that unemployment had on the risk of having them. For each of the other disorders studied, we observed varying degrees of risk, although these variations across waves were not statistically significant [e.g. minor depression, test for effect homogeneity, $\chi^2(1) = 2.58$, $P = 0.108$]. Overall, based on the calculations of PAR,[24] we estimated that about 3.1% of the risk of having major depression among attendees in the entire study period could be attributed to unemployment. In the rest of the results, for brevity, we focus mainly on major depression, although we observed generally similar patterns for the other disease clusters considered (except eating disorders).

Rising unemployment also has 'spread effects'; specifically, unemployment not only impacts the unemployed, but also creates a high level of insecurity among family members and members of communities. To study these associations, we evaluated the risks associated of a family member being unemployed, correcting for the employment status of the individual. These data were only available for the second wave of analysis, limiting the sample size. Overall, several mental disorders studied had strong and statistically significant association with family unemployment, as shown in

Table 2. Using PAR calculations, we estimated individual (PAR = 0.097) and family unemployment (0.137) that jointly account for an estimated 23.3% of the population risk of attending with major depression observed in the second survey wave.

Cross-sectional risk of poor mental health and housing payment difficulties and evictions

We assessed the risk of major depression associated with mortgage payment difficulties, reported by 22% of the surveyed population attending primary care centres. Table 3 shows the results of a model adding an indicator for whether the respondent reported difficulties paying mortgages. Even after correcting for the risks of unemployment, there was a significant additional risk associated with mortgage payment difficulties (OR = 2.11, $P < 0.001$). Based on PAR calculations, we estimated mortgage payment difficulties accounted for an additional 11.0% of the overall population risk of depression among primary care attendees. Given the low initial level of exposure to this risk before the housing market crash, mortgage payment difficulties, together with rising unemployment, account for a significant fraction of the population risks of mental health disorders. For a 40-year-old married man with multiple economic risk factors (unemployed, family member unemployed and experiencing difficulty paying mortgages), we estimated a probability of depression of 0.65 vs. 0.35 for the same man without these characteristics.

Discussion

Our study documents substantial increases in the proportion of patients with mood, anxiety, somatoform and alcohol-related disorders among primary care attendees at Spanish between 2006 and 2010 during the period of economic crisis, after adjusting for potential differences among consulting populations related to age, sex, marital status, educational attainment and urban/rural residence. Consistent with the existing studies, we found several mental health disorders were significantly associated with both self-unemployment and household unemployment. Using survey

Table 1 Adjusted associations of unemployment and educational attainment with mental health diagnoses, primary care attendees, Spain 2006 and 2010

	Major depressive disorder		Minor depressive disorder		Dysthymia		Alcohol abuse	
	2006	2010	2006	2010	2006	2010	2006	2010
Education level								
College/graduate school	0.91	0.72***	1.08	0.93	0.77*	0.55***	0.59	0.54**
	(0.077)	(0.065)	(0.17)	(0.15)	(0.083)	(0.059)	(0.18)	(0.11)
Completed high school	1.08	0.90	1.30	0.99	0.83	0.70***	0.57	0.71*
	(0.082)	(0.074)	(0.18)	(0.14)	(0.080)	(0.065)	(0.16)	(0.12)
Completed elementary school	1.17*	0.93	1.16	1.06	0.96	0.86	1.01	0.87
	(0.085)	(0.073)	(0.16)	(0.14)	(0.086)	(0.074)	(0.27)	(0.14)
Primary school/no schooling	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Employment status								
Unemployed	1.54***	1.72***	1.00	1.50**	1.84***	1.16	1.10	1.36*
	(0.16)	(0.14)	(0.21)	(0.20)	(0.23)	(0.11)	(0.40)	(0.20)
Employed/inactive	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Pseudo R^2	0.022	0.015	0.0047	0.0034	0.024	0.025	0.11	0.10

Notes: ORs (standard errors in parentheses). Reference group for education is primary/no schooling; for unemployed is employed or inactive. Models adjusted for age, gender, BMI and urban residence. In 2006, $n = 7929$; in 2010, $n = 5875$.
*$P < 0.05$, **$P < 0.01$, ***$P < 0.001$.

Table 2 Adjusted associations of own-unemployment and family-unemployment with mental disorders, primary care attendees, Spain, 2010

	Major depression	Minor depression	Dysthymia	Generalized anxiety disorder	Multisomatoform disorder	Panic attack disorder	Alcohol dependence	Alcohol abuse
Self-unemployed	1.49***	1.48**	1.03	1.53***	1.58***	1.00	2.10***	1.26
	(0.13)	(0.20)	(0.10)	(0.15)	(0.15)	(0.11)	(0.41)	(0.19)
Family member unemployed	1.72***	1.07	1.54***	1.63***	1.33***	1.44***	1.82***	1.27
	(0.11)	(0.12)	(0.11)	(0.12)	(0.098)	(0.12)	(0.32)	(0.16)
Pseudo R^2	0.024	0.0035	0.031	0.020	0.015	0.032	0.099	0.10

Notes: ORs (standard errors in parentheses). Models adjusted for age, gender, BMI, urban residence and educational attainment. Number of patients is 5876. Reference group for self-unemployed is employed or inactive; for family member unemployed is all family members employed or inactive.
**$P < 0.01$, ***$P < 0.001$.

Table 3 Association of difficulties repaying mortgages with major depression, primary care attendees, Spain, 2010

Covariate	Major depression	
Age	1.00	1.00
	(0.0021)	(0.0021)
Male	0.65***	0.67***
	(0.037)	(0.037)
Married	0.92	0.90
	(0.050)	(0.049)
BMI	1.02*	1.02**
	(0.0075)	(0.0075)
Urban residence	0.97	0.98
	(0.054)	(0.054)
Education level	0.96	0.94*
	(0.029)	(0.028)
Unemployed	1.20*	1.44***
	(0.11)	(0.12)
Family member unemployed	1.53***	1.71***
	(0.099)	(0.11)
Housing repayment difficulties	2.12***	–
	(0.15)	
Housing eviction	–	2.95***
		(0.81)
Pseudo R^2	0.039	0.026
Number of patients	5876	5876

Notes: ORs presented; Standard errors in parentheses.
*$P < 0.05$, **$P < 0.01$, ***$P < 0.001$.

questions available in the 2010 wave, we found that even after correcting for the risks of unemployment there was a significant rise in attendance with depression associated with mortgage repayment difficulties and evictions. Taken together, we estimated that about one-third of the overall risk of attendance with major depression could be attributed to the combined risks of individual unemployment, family unemployment and mortgage payment difficulties.

Before further interpreting our findings, it is necessary to consider the limitations of our study. The sample is not population-based but instead includes only those who have decided to seek care. There are many factors that influence the decision to seek care so it is not possible to say whether there has been a true rise in the prevalence of mental disorders among the population. It is, for example, theoretically possible that the prevalence of mental disorders has remained the same, but the probability of attending primary care for other problems has fallen sharply, or that those experiencing mental illness have migrated from secondary to primary care for their treatment. Neither of these scenarios is likely. One reason is that in Spain in contrast to other countries, free health care is available to all and the use of the health-care system, especially at the primary care level, is very high. The compositions of the two samples do differ as shown in Supplementary Appendix 1. However, in most respects these differences are consistent with an increase in attendance by those who would be expected to be most vulnerable to mental disorders at a time of economic crisis. In other words, there are more unmarried and unemployed men in the second sample.

Another limitation is that conventional measures of unemployment do not capture those who shifted from full employment to being on 'sick leave' or 'temporarily unable to work'. Although unemployment rates in Spain are high, the actual economic consequences are also significant for those who have been furloughed or had their work hours otherwise reduced. As these persons are classified as 'working' according to standard unemployment definitions, the estimated risks associated with unemployment as an indicator of economic crisis are likely to be understated. On the other hand, we found large, significant associations in the second wave of the data associated with mortgage payment difficulties and housing eviction. While we lack data from the first wave, there were relatively few such payment difficulties and evictions during that period, making it likely that the associations we observed reflect economic changes that occurred within the past several years.

Further, although we document a substantial rise in psychiatric morbidity among patients attending primary care physicians in Spain, there is still much to be understood about the population-level causes of the rises. There are three main possibilities, derived from the components of PAR: the relative risk and the prevalence of the exposure and a residual. Thus, first possibility is thus a change in relative risk. However, we found that associations between unemployment and major depression were of similar magnitude in both 2006 and 2010. The second possibility is the prevalence of exposure. Unemployment rates rose in the sample by ∼7 percentage points (a similar size as observed among the general population), thereby increasing the PAR. These changes in population risk exposure appear to account for the bulk of the changes. When we summed the population attributable fractions of the economic indicators (self-unemployment, household unemployment and difficulties repaying mortgages), we found they accounted for about one-third of the total population risk in the year 2010. These findings are consistent with evidence from elsewhere, and in particular the now well-documented association between unemployment and suicide.[14,25] The final possibility, however, is potentially confounding by unobserved factors. Using standard methods, we adjusted for changes in the survey respondents that were not plausibly linked to financial crisis (such as sex and marital status, but not unemployment). One potential confounding factor we were unable to address was potential changes in the season of interview, as the first wave occurred between January 2006 and January 2007 but the second wave occurred between February 2010 and April 2011. Future research is needed to investigate additional factors such as access to social welfare that may account for the observed population risk changes. Additionally, we observed no significant increase in diagnoses of non-purging bulimia, which was as expected given our designation of it as a 'control disorder'; however, it is plausible that symptoms may have worsened among those already affected so as to prompt increasing attendance but that small numbers in this category may limit statistical power to detect a true association should one exist.

Despite this evidence of greater need for health care, there is a risk that austerity measures may impact adversely on health-care provision. As the Spanish labour market collapsed, creating conditions of economic hardship for many ordinary people, tax revenues also fell sharply from less consumption and collapsed investment, creating a budget deficit of 12% of GDP in 2009. Although Spain has low debt levels of 60% of GDP compared with the rest of the European Union (20 percentage points less than Germany) and there are feasible alternatives to cutting budgets,[2] the International Monetary Fund and European Commission have called for what they describe as 'far-reaching' and 'absolutely necessary' reforms to reduce government spending to levels set out in the Maastricht criteria (3% of GDP deficit by 2013).[26,27] These will require budget cuts of €27 billion in 2010–11[28] and it is generally accepted that they will reduce growth in the short-run,[2] delaying economic recovery, as has already occurred[27] and pose additional risks to health by undermining

crucial social support.[29] Many areas of public spending are being affected, as the Spanish government seeks to inspire investor confidence through displays of austerity, including cuts to essential front-line mental health services. Given the rising prevalence of mental disorders we have observed among primary care attendees, there is a risk that retrenchments in social support and front-line health services could worsen the mental health risks experienced among vulnerable populations as a result of the financial crisis.

Supplementary Data

Supplementary Data are available at *Eurpub* online.

Funding

Key points

- Substantial increases have occurred in the frequency of patients attending primary care centres with mood, anxiety, somatoform and alcohol-related disorders in Spain.
- About one-third of these risks were associated with household unemployment and mortgage payment difficulties.
- Expanding mental health services in primary care settings to at-risk groups may help cope with rising mental health disorders in areas affected by recession.

References

1 World Bank. *World Development Indicators*. Washington DC: World Bank, 2011.

2 Weisbrot M, Montecino J. *Alternatives to Fiscal austerity in Spain*. Washington DC: Center for Economic and Policy Research, 2010.

3 Crawford L. Boomtime Spain waits for the bubble to burst. *Financial Times* 2006.

4 EuroStat. *EuroStat Database*. Brussels: European Commission, 2011.

5 WHO-Europe. *Health in Times of Global Economic Crisis: Implications for the WHO European Region*. Copenhagen: World Health Organization, 2009.

6 Benach J, Muntaner C. Precarious employment and health: developing a research agenda. *J Epidemiol Community Health* 2007;61:276–7.

7 Burgard S, Brand JE, House JS. Perceived job insecurity and worker health in the United States. *Soc Sci Med* 2009;69:777–85.

8 Perlman F, Bobak M. Assessing the contribution of unstable employment to mortality in posttransition Russia: prospective individual-level analyses from the Russian Longitudinal Monitoring Survey. *Am J Public Health* 2009;99:1818–25.

9 Ruhm C. Macroeconomic conditions, health and mortality. In: Jones A, editor. *Elgar Companion to Health Economics*. Cheltenham, UK: Edward Elgar Publishing, 2006:5–16.

10 Ruhm C. Good times make you sick. *J Health Econ* 2003;22:637–58.

11 Ruhm C. Are recessions good for your health? *Q J Econ* 2000;115:617–50.

12 Tapia-Granados J. Recessions and mortality in Spain, 1980–1997. *Eur J Popul* 2005;21:393–422.

13 Tapia-Granados J. Increasing mortality during the expansions of the US economy, 1900–1996. *Int J Epidemiol* 2005;34:1194–202.

14 Stuckler D, Basu S, Suhrcke M, et al. The public health impact of economic crises and alternative policy responses in Europe. *Lancet* 2009;374:315–23.

15 World Health Organization. WHO European Health for All Database. January 2011. update [database on the Internet]. World Health Organization, 2011. Available at: http://www.euro.who.int/HFADB (20 January 2012, date last accessed).

16 Stuckler D, Basu S, Suhrcke M, et al. Effects of the 2008 financial crisis on health: a first look at European data. *Lancet* 2011;378:124–5.

17 Wasserman D, Wasserman C. *Oxford Textbook of Suicidology and Suicide Prevention*. Oxford: Oxford University Press, 2009.

18 Hadju P, McKee M, Bojan F. Changes in premature mortality differentials by marital status in Hungary and in England and Wales. *Eur J Public Health* 1995;5:259–64.

19 Baca E, Saiz J, Porras A. The detection of mental disorders by physicians who are not psychiatrists: usefulness of the PRIME-MD questionnaire. *Med Clin* 2001;116:504–9.

20 Gili M, Comas A, Garcia-Garcia M, et al. Comorbidity between common mental disorders and chronic somatic diseases in primary care patients. *Gen Hosp Psychiatry* 2010;32:240–5.

21 Roca M, Gili M, Garcia-Garcia M, et al. Prevalence and comorbidity of common mental disorders in primary care. *J Affect Disord* 2009;119:52–8.

22 Spitzer R, Williams JBW, Kroenke K, et al. Utility of a new procedure for diagnosing mental disorders in Primary Care. *JAMA* 1994;272:1749–56.

23 Kaluski DN, Natamba BK, Goldsmith R, et al. Determinants of disordered eating behaviors among Israeli adolescent girls. *Eat Disord* 2008;16:146–59.

24 Levin M. The occurrence of lung cancer in man. *Acta Unio Int Contr* 1953;9:531–41.

25 Lewis G, Sloggett A. Suicide, deprivation and unemployment: record linkage study. *BMJ* 1998;317:1283–6.

26 Bloomberg. Spain, Portgual deficit reductions 'absolutely necessary', EU's Rehn says. *Bloomberg* 2010.

27 Day P. Spain underperformed euro zone for 1st time in 2010. *Reuter's* 2011.

28 BBC news Business. Spanish budget: cuts to total 27 bn euros this year. Available at: http://www.bbc.co.uk/news/business-17557172 (30 March 2012, date last accessed).

29 Stuckler D, Basu S, McKee M. Budget crises, health, and social welfare programmes. *BMJ* 2010;340:c3311.

The relationship between personal debt and specific common mental disorders

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Background: Personal debt is now recognized as one of the many factors associated with common mental disorders (CMD). We aim to estimate the prevalence of 'specific' mental disorders based on ICD-10 research diagnostic criteria by type of debt and quantify the additional influence of addictive behaviours. **Method:** A random probability sample comprising 7461 respondents were interviewed for the third national survey of psychiatric morbidity of adults in England carried out in 2007. The prevalence of CMD was estimated from the administration of the CIS-R. Respondents were asked about sources of debt and their borrowing choices. **Results:** In 2007, 8.5% of adults were in arrears. Adults in debt were three times more likely than those not in debt to have CMD. The increased likelihood of CMD among those in arrears was found for all CMD and was irrespective of source of debt—housing, utilities and purchases on credit. The situation was exacerbated among those with addictive behaviours—alcohol or drug dependence or problem gambling. Those with multiple sources of debt and who had to obtain money from pawnbrokers and moneylenders had the highest rate of CMD, ~50%. **Conclusions:** Debt is one of the major risk factors for CMD. This has practical implications for both health services and financial services, which both need to be alert to the association and adapt and train their respective services accordingly so that people in debt can access help for mental disorders and people with mental disorders can access help for debt.

Introduction

Increasing rates of unemployment, cuts in pensions and benefits and higher prices in the shops are all factors that are likely to contribute to the financial stress put on individuals and families. Some will cope by looking for opportunities to reduce the impact of the financial strain; others may fall, or fall further, into debt. Problems with financial indebtedness and the impact that financial stress has on family well-being have loomed large in media coverage of the consumer credit market in recent years, heightened by the impact of the 'credit crunch'.[1]

There has been some research on the relationship between debt and mental disorders but quite often different approaches have been used. The two principal methodological challenges have been the measurement of debt and the assessment of mental health problems.

In large epidemiological surveys, it is rarely possible to include questions about specific amounts of money relating to individual items of expenditure (housing costs, heating costs and weekly shopping bills), as they are time consuming to collect and increase respondent burden. In many cases, respondents are merely asked whether they can make ends meet or details of their budgeting strategies. These subjective assessments are then used as proxies for actual indebtedness and for underlying household budgetary problems.

The second limitation of previous studies is restriction to the relationship of debt with depression[1,2] or with psychological