

Original Article

Cite this article: Antunes A, Frasquilho D, Azeredo-Lopes S, Silva M, Cardoso G, Caldas-de-Almeida JM (2018). Changes in socioeconomic position among individuals with mental disorders during the economic recession in Portugal: a follow-up of the National Mental Health Survey. *Epidemiology and Psychiatric Sciences* 1–6. <https://doi.org/10.1017/S2045796018000392>

Received: 16 January 2018

Revised: 15 June 2018

Accepted: 8 July 2018

Key words:

Common mental disorders; epidemiology; mental health; population survey; social factors

Author for correspondence:

Ana Antunes, E-mail: ana.antunes@nms.unl.pt

Changes in socioeconomic position among individuals with mental disorders during the economic recession in Portugal: a follow-up of the National Mental Health Survey

A. Antunes, D. Frasquilho, S. Azeredo-Lopes, M. Silva, G. Cardoso
and J. M. Caldas-de-Almeida

Chronic Diseases Research Center (CEDOC), Nova Medical School, Nova University of Lisbon, Lisbon, Portugal

Abstract

Aims. Portugal was one of the European countries most affected by the period of economic recession initiated in 2008. Social inequalities are likely to widen during such periods and disproportionately affect people with mental disorders. The present study aims to compare self-reported changes in indicators of socioeconomic position during the economic recession in Portugal among people with and without mental disorders in the beginning of this period. Three dimensions were assessed, namely employment situation, experiences of financial hardship and subjective social status.

Methods. Data from the World Mental Health Survey Initiative Portugal (2008/2009) and from the National Mental Health Survey Follow-up (2015/2016) were used ($n = 911$). Multinomial and logistic regression models were performed to examine the association between the presence of any 12-month mood or anxiety mental disorder in 2008/2009 and indicators of socioeconomic position in 2015/2016. All analyses were adjusted for gender, age, presence of any physical disorder and education at the baseline.

Results. Participants that had any mental disorder in the beginning of the economic recession reported 2.20 (95% CI 1.31–3.71; $P < 0.01$) higher odds of financial hardship related to daily life in 2015/2016, when compared with those without any mental disorder, after adjusting for age, gender, education and presence of any physical disorder. The results may also suggest a pattern of increased socioeconomic disadvantage among people with prior mental disorder, despite not reaching statistical significance.

Conclusions. The results of this study suggest that the economic recession may have contributed to wider social inequalities between people with and without mental disorders. Policies to support these individuals, such as access to treatment and alleviation of financial hardship, should be a priority in times of economic downturn.

Introduction

The global financial crisis that started in 2008 led to a period of economic contraction in many European countries, including Portugal. The economic recession had a severe macroeconomic impact in the country, such as loss of gross domestic product, rising deficit and significant levels of government debt (OECD, 2015). The annual unemployment rate of 16.4% in 2013 was one of the highest in Europe (Eurostat, 2018). In 2011, the Portuguese government signed a financial rescue programme with the European Union, European Central Bank and International Monetary Fund, a group of institutions commonly known as *Troika* (European Commission, 2014). The agreement imposed austerity measures aiming at the reduction of public expenditure and fiscal consolidation through substantial cuts in public funding, increase in taxes, labour market reforms and restrictions in welfare benefits (Karanikolos *et al.*, 2013; European Commission, 2014; Zartaloudis, 2014). The Portuguese population suffered a reduction in income, which disproportionately affected the lowest socioeconomic levels, and consequently, the number of people in poverty increased during the recession (Farinha Rodrigues *et al.*, 2016). Despite being deeply affected by the economic recession and subsequent austerity measures, Portugal has received proportionally less attention than its Southern European counterparts regarding the consequences of these measures on health outcomes and social inequalities (Legido-Quigley *et al.*, 2016).

Research on the mental health consequences of the economic recession has shown its detrimental effect through growing risk factors such as unemployment, financial hardship and precarious job conditions (Marmot *et al.*, 2013; Frasquilho *et al.*, 2016; Parmar *et al.*, 2016). However, little is known about the impact of this period in individuals with prior mental disorders, which may have been disproportionately affected (Evans-Lacko *et al.*, 2013). Disparities

in the labour market participation between people with and without mental disorders have been documented, due to higher levels of unemployment, sickness absence and early retirement in the first group (Cook, 2006; Schofield *et al.*, 2011; Knudsen *et al.*, 2013; Ekberg *et al.*, 2015; Lahelma *et al.*, 2015). Additionally, periods of economic recession can be particularly challenging for individuals with mental disorders due to more competitive labour market conditions and social stigma attached to mental illness (Evans-Lacko *et al.*, 2013). A study among 27 European Union countries, using data from 2006 and 2010, has shown that the unemployment gap between people with and without mental disorders significantly widened during the economic recession, suggesting that periods of economic recession may intensify the social exclusion of people with mental disorders (Evans-Lacko *et al.*, 2013).

A dual causal pathway in the association between socioeconomic conditions and mental disorders, where social causation and social selection mechanisms operate concurrently, has been suggested (Saraceno *et al.*, 2005; Lund *et al.*, 2014; Elwell-Sutton *et al.*, 2017). On one hand, studies indicate an association between low socioeconomic status and a higher risk of mental disorders (Fryers *et al.*, 2003; Allen *et al.*, 2014; World Health Organization and Calouste Gulbenkian Foundation, 2014). On the other hand, mental disorders have been associated with adverse economic outcomes such as financial deprivation and job loss, respectively (Kessler *et al.*, 2008; Lund *et al.*, 2013; Mojtabai *et al.*, 2015). Given that people with mental disorders may have faced wider social inequalities in comparison to the rest of the population, it is important to assess their socioeconomic trajectories during the economic recession.

The aim of the present study is to compare self-reported socioeconomic changes during the economic recession among people with and without 12-month mood or anxiety mental disorders. Three dimensions were assessed in order to capture the changes related to this period, namely employment situation, experiences of financial hardship and modifications in the relative social status an individual perceived to be in comparison to others. It is hypothesised that people diagnosed with any 12-month mental disorder in the beginning of the economic recession were more likely to report negative changes in socioeconomic position, such as becoming unemployed, reporting higher levels of financial hardship and loss of subjective social status.

Methods

Data sources

This study used data from the World Mental Health Survey Initiative (WMHS) Portugal, conducted in 2008/2009 (T_0) and from the National Mental Health Survey Follow-up, conducted in 2015/2016 (T_1).

World Mental Health Initiative Portugal (T_0)

The WMHS was carried out in Portugal in 2008/2009 and was designed to collect epidemiological data on the morbidity of psychiatric conditions, using worldwide standardised methods (Kessler *et al.*, 2011; Caldas-de-Almeida *et al.*, 2013; Xavier *et al.*, 2013).

The study design was based on a stratified multistage clustered area probability household sample and administered to a nationally representative sample of respondents. The participants were

Portuguese-speaking adults aged 18 or above, residing in permanent private dwellings in the country's mainland (Xavier *et al.*, 2013). Informed consent was obtained before the interviews and the procedures were approved by the Ethics Committee of the Nova Medical School (Nova University of Lisbon). The survey was administered by trained lay interviewers with a computer-assisted personal interview on a face-to-face setting. The questionnaire was divided in two parts to reduce respondent burden: part I included core diagnostic assessment of mental disorders ($n = 3849$). All respondents meeting the criteria for any DSM-IV disorder also completed the part II of the interview, as well as a 25% randomly selected sample of participants who did not meet the criteria for any disorder ($n = 2060$). Part I data were weighted to adjust differential probabilities of selection, between and within households, non-response bias and discrepancies between the sample and the socio-demographic and geographic data distribution from the census population. Part II was additionally weighted in order to adjust for the differential sampling of part I participants into part II (Xavier *et al.*, 2013).

National Mental Health Survey Follow-up (T_1)

A follow-up study of the WMHS Portugal was conducted in 2015/2016 in order to compare epidemiological data on mental disorders, socioeconomic conditions and use of services before and after the economic crisis. All procedures were approved by the Ethics Committee of the Nova Medical School (Nova University of Lisbon) and written informed consent was obtained before the interviews. Fieldwork procedures were similar to those of the WMHS Portugal (Xavier *et al.*, 2013). All individuals with a mental disorder diagnosis and a 20% random sample of those without a diagnosis that had participated in the part II of the survey were recruited to the follow-up survey ($n = 911$). A new weighting was created based on the part II weight of the previous survey in addition to the differential probability of selection in the follow-up.

Measurements

Twelve-month mental disorders in 2008/2009

The presence of any mental disorder in the last 12 months in T_0 was considered as the independent variable. A dichotomous variable characterised the participants as having or not a 12-month mood or anxiety disorder diagnosis at the onset of the economic crisis. Mental disorders were assessed using the version 3.0 of the World Health Organization Composite International Diagnostic Interview (CIDI), a fully structured diagnostic interview (Kessler and Üstün, 2004), which showed good concordance with the Structured Clinical Interview for DSM-IV (SCID) in a clinical reappraisal study (Haro *et al.*, 2006). The diagnoses were based in the criteria of the American Psychiatric Association's Diagnostic and Statistical Manual Disorders Fourth Edition (DSM-IV) (First and Gibbon, 2004) and included anxiety disorders (panic disorder, generalised anxiety disorder, social phobia, specific phobia, agoraphobia without panic disorder, post-traumatic stress disorder, obsessive-compulsive disorder and adult separation anxiety) and mood disorders (major depressive disorder, dysthymia and bipolar disorder, including bipolar I and II).

Changes in socioeconomic status during the economic crisis

Several questions were included in the National Mental Health Survey Follow-up (T_1) in order to capture the changes that

occurred during the economic recession. Three dimensions were assessed and considered as dependent variables, namely reported changes in employment situation, financial hardship in the last 5 years and changes in subjective social status.

Employment situation

Employment situation was assessed in T_0 and T_1 and the participants were classified as follows: (1) working; (2) unemployed; (3) retired and 'others'. The 'others' category includes, for example, homemakers and those on sickness absence.

The change in employment situation from T_0 to T_1 was evaluated with a new variable, which considered if the participants reported to be working on both periods or to have become a worker (1); reported to be unemployed on both periods or to have become unemployed (2) and to be retired or 'others' on both periods or to have become retired or 'others' (3).

Financial hardship during the last 5 years

Financial hardship was assessed through eight questions that evaluated financial difficulties over the last 5 years in the following domains: (1) food; (2) water, electricity or telephone bills; (3) rent; (4) car loan; (5) mortgage; (6) credit card debt; (7) clothing; (8) leisure activities. Response categories were presented through a Likert scale taking the options (1) never, (2) rarely, (3) sometimes and (4) frequently.

In order to reduce the number of variables listed above, Nonlinear Principal Component Analysis (NLPCA) was used. This method has been recommended for categorical variables (Manisera *et al.*, 2010). Two dimensions were obtained. The first dimension included the following items: food, water, electricity or telephone bills, rent, clothing and leisure activities. This sub-scale was designated as 'daily life-related financial hardship' and accounted for 35.9% of the variance in the optimally scaled matrix. The second dimension included the following items: car loan, mortgage and credit card debt. This sub-scale was designated as 'debts-related financial hardship' and accounted for 21.7% of the variance. The overall model (both dimensions) accounted for 57.5% of the variance in the optimally scaled matrix. The object scores for each individual were obtained by the component loadings for each dimension. In order to identify the participants with higher levels of financial hardship, the 90th percentile of the distribution was considered as a cut-off point for both sub-scales, indicating the presence of financial hardship.

Changes in subjective social status

Subjective social status was measured in T_0 and T_1 with the MacArthur subjective social status scale, an instrument widely used in epidemiological research that has shown good reliability and validity (Scott *et al.*, 2014). The scale consists in a stepladder with rungs numbered from 1 to 10, with the highest value at the top. Participants were asked to consider the ladder as representing the people in Portugal, where those at the top of the ladder would be better off, with most money, education and respected jobs. The answers provided by the participants were categorised as follows: (1) equal or higher social status and (2) lower social status in T_1 compared with T_0 .

Covariates

The following baseline variables were considered as covariates: gender, age and presence of any physical disorder. Physical disorders were self-reported through a chronic disorders checklist that has shown good concordance with medical records (Knight *et al.*,

2001). Moreover, in order to adjust for differences in socioeconomic position at baseline, as people with low socioeconomic position may be more affected by the negative outcomes of the economic recession (Marmot *et al.*, 2013), the models were adjusted for educational level, assessed by the number of years of educational attainment as a continuous variable, which is widely used as an indicator of socioeconomic position in epidemiological studies (Galobardes *et al.*, 2006).

Data analysis

Descriptive statistics (frequencies) were carried out for all variables. Logistic regression models were conducted for binary outcomes, namely financial hardship-related daily life (yes/no), financial hardship related to debts (yes/no) and changes in subjective social status (equal or higher *v.* lower subjective social status). A multinomial regression model was used to evaluate the change in employment situation as the outcome. All models were adjusted for age, gender, education and presence of any physical disorder (T_0). Statistical significance was set at $\alpha=0.05$. All data analysis was conducted using Statistical Package for Social Sciences (SPSS) version 22.0 and R version 3.4.2.

Results

Table 1 describes the characteristics of the study population. The number of participants at baseline (T_0) and in the follow-up-study (T_1) was $n = 911$, from which 19.7% ($n = 317$) had any 12-month mental disorder before the economic crisis. Women were 50.4% ($n = 583$) of the participants. The mean age was 45.91 (s.d. = 15.73) and the mean number of years of education was 9.22 (s.d. = 4.83) in T_0 .

Regarding the changes in socioeconomic position, the majority of the participants stayed or became workers (76.1%; $n = 540$), 7.4% ($n = 62$) stayed or became unemployed, and 16.5% ($n = 147$) stayed or became retired or other during the economic recession. Financial hardship, established through the 90th percentile of the distribution as a cut-off point, was found in 9.7% of the participants ($n = 115$) in relation to daily life, and in 6.4% of the participants ($n = 66$) in relation to debts. As for perceived social status, 47.3% ($n = 433$) of the participants reported a lower social status in T_1 in comparison with T_0 .

Table 2 presents the results of the multivariate regression models, in the form of odds ratio (OR) and respective confidence intervals (CI).

The multinomial regression model presents the associations between the change in employment situation and presence of any 12-month mental disorder in T_0 , which were found to be not statistically significant.

The logistic regression models evaluating the association between the two dimensions of financial hardship under study (daily life-related financial hardship and debt-related financial hardship) indicated that participants with any 12-month mental disorder in T_0 had 2.20 (95% CI 1.31–3.71) higher odds of reporting daily life-related financial hardship when compared with individuals without any 12-month mental disorder ($P < 0.01$). In relation to debt-related financial hardship, the association did not reach statistical significance. Regarding the logistic regression model assessing the changes in subjective social status, the results were also not statistically significant.

Table 1. Characteristics of the study sample

Baseline (T_0)	<i>n</i> (%)
Presence of any mental disorder	
Yes	317 (19.7)
No	594 (80.3)
Gender	
Female	583 (50.4)
Male	328 (49.6)
Presence of any physical disorder	
Yes	687 (71.0)
No	224 (29.0)
	Mean (s.d.)
Age	45.91 (15.73)
Education	9.22 (4.83)
Follow-up (T_1)	<i>n</i> (%)
Change in employment situation	
Stayed or became a worker	540 (76.1)
Stayed or became unemployed	62 (7.4)
Stayed or became retired or 'others'	147 (16.5)
Financial hardship (cut-off 90th percentile)	
Daily life	115 (9.7)
Debts	66 (6.4)
Subjective social position	
Equal or higher	465 (52.7)
Lower	433 (47.3)

% , means and standard deviations (s.d.) calculated with weighting from follow-up study (T_1).

Discussion

This study provided an assessment of changes in individual socio-economic status in the context of economic recession and their association with the presence of a prior mental disorder. As hypothesised, the results suggest that the presence of a 12-month mental disorder at the onset of the economic crisis may have had a negative effect in the socioeconomic position of these individuals. Specifically, people with any 12-month mental disorder at the onset of the economic recession were two times more likely to report daily life-related financial hardship over the previous 5 years, when compared with individuals without any mental disorder. Overall, despite the absence of statistical significance, the findings may suggest a pattern of increased socioeconomic disadvantage among people with any mental disorder at the beginning of the economic recession.

Until now, most research has evaluated the impact of the economic recession on mental health outcomes due to socioeconomic risk factors, such as unemployment, precarious work conditions and financial hardship, as previously referred (Frasquilho *et al.*, 2016; Parmar *et al.*, 2016). However, few studies have assessed the impact of the economic recession on people with previous mental disorders (Evans-Lacko *et al.*, 2013). Several mechanisms may contribute to an increased vulnerability of this group during a period of economic recession, such as more competitive labour market conditions or stigma and

Table 2. Multivariate models on the association between financial hardship, subjective social position and changes in employment situation and presence of any mental disorder at baseline

	Presence of any mental disorder at baseline
	OR (95% CI)
Changes in employment situation ^a	
Stayed or became worker	Ref.
Stayed or became unemployed	1.56 (0.81–3.03)
Stayed or became retired or 'others'	1.12 (0.58–2.15)
Financial hardship (cut-off 90th percentile) ^b	
Daily life	
Yes	2.20 (1.31–3.71)*
No	Ref.
Debts	
Yes	1.19 (0.62–2.27)
No	Ref.
Subjective social position ^b	
Equal or higher	Ref.
Lower	1.16 (0.82–1.65)

Follow-up weighting (T_1).

All models adjusted for age, gender, education and presence of any physical disorder.

* $p < 0.01$.

^aMultinomial regression model.

^bLogistic regression models.

misconceptions related to mental disorders (Evans-Lacko *et al.*, 2013). For instance, disability has been established as a major consequence of mental disorders, which affects several dimensions of daily life (Alonso *et al.*, 2004; Whiteford *et al.*, 2013). In particular, the consequences of mental disorders on work performance are well established (Alonso *et al.*, 2011; De Graaf *et al.*, 2012; Ervasti *et al.*, 2013; Knudsen *et al.*, 2013; Cardoso *et al.*, 2017). The inability of people with mental disorders to adjust to a more precarious labour market and stigma from employers may be related with increased difficulties maintaining or finding a job (Evans-Lacko *et al.*, 2013). For those that had a job, absenteeism and restrictions in the access to sickness absence benefits (Zartaloudis, 2014) may have contributed to loss of income.

The results of this study may suggest that the period of economic recession aggravated the socioeconomic disadvantage of people with mental disorders, particularly regarding the experience of financial hardship. Notwithstanding, it is important to critically reflect upon the results obtained in this study. From the indicators evaluated, a statistically significant association was only found between daily life-related financial hardship and the presence of any mental disorder in T_0 . Although the tendency of risk found in relation to other indicators of socioeconomic position being in line with the study's hypothesis and other research (Evans-Lacko *et al.*, 2013), conclusions must be carefully drawn.

The adverse consequences of the economic recession at the labour market level and wider social inequalities may offset some of the differences between people with and without mental disorders. The findings of this study may also reflect structural characteristics of the context. Portugal has been characterised by a relatively low level of income, alongside one of the highest levels of internal income inequality in the European Union (Carmo

et al., 2015). Moreover, similar to other Southern European countries, its welfare system provides the smallest public expenditure per capita in social protection in Western Europe, with the benefits' provision distributed across several schemes and heavily relying on families (Bambra, 2011). This scenario was further aggravated by austerity measures that restricted access and generosity of welfare benefits (Zartaloudis, 2014), which may also have contributed to the findings regarding daily life-related financial hardship.

Further limitations should be acknowledged. First, the results of this study cannot be generalised to the Portuguese population. Second, assessment of indicators may have limited the robustness of the results. Third, the number of individuals in T_1 limited the evaluation of factors such as severity, disability and treatment of the diagnosed mood or anxiety disorders in T_0 . Furthermore, it was not possible to obtain information about the illness course, including remission or recurrent episodes, from T_0 to T_1 . Related to this limitation, participants with mental health problems in T_1 may be more likely to report negative events, leading to potential recall bias (Prince, 2012). Fourth, the socioeconomic position at baseline is likely to influence the trajectories of the individuals. It has been suggested that the health and economic consequences varied across social groups, affecting disproportionately those already more disadvantaged, which has been established in the Portuguese population (Marmot *et al.*, 2013; Farinha Rodrigues *et al.*, 2016). The multivariate models were adjusted for the number of years of education at baseline, a reliable indicator of socioeconomic position (Galobardes *et al.*, 2006). However, this may be considered a limitation since some authors argue that social inequalities emerge from a complex process between several indicators, such as education, occupation and income, in specific temporal order, which were not considered in the analysis (Lahelma, 2004). Fifth, the assessment of employment situation did not allow the inclusion of possible changes such as transition from a full- to a part-time job or temporary work. Moreover, by only comparing the employment situation in T_0 and T_1 , fluctuations in employment situation during the two periods were also not evaluated. Finally, the cut-off point for assessing financial hardship on daily life and debts, which was set at the percentile 90th, may have underestimated the presence of financial difficulties in both domains.

In spite of these limitations, to our knowledge, this study is the first to assess how the presence of any mental disorder may have influenced socioeconomic changes during the economic recession, using the same sample of individuals. Furthermore, it provides an innovative contribution to the literature by establishing the presence of any mood or anxiety disorder before the onset of the economic crisis as a predictor of negative socioeconomic changes during this period. Similar to other research (Evans-Lacko *et al.*, 2013), our findings may suggest that the period of economic recession was particularly challenging for individuals with mental disorders and have intensified their social exclusion. Research should further evaluate the mechanisms associated with the increased vulnerability of people with mental disorders during times of economic recession and its long-term consequences. Access to adequate treatment, social protection measures and alleviation of financial hardship for people with mental disorders comprise some of the policy responses needed during periods of economic crisis to prevent further inequalities. Efforts to target and support people with mental disorders should be a priority in times of economic recession, in order to ensure their fair inclusion in all axes of society.

Acknowledgements. The authors wish to thank the World Mental Health Survey Initiative staff for their assistance with instrumentation, fieldwork and data analysis. A complete list of funding support and publications can be found at: <http://www.hcp.med.harvard.edu/wmh>.

Financial support. AA receives a grant from the Portuguese Foundation for Science and Technology (FCT) (grant number PD/BD/105822/2014). The Portuguese Mental Health Study was carried out by the Department of Mental Health, NOVA Medical School, NOVA University of Lisbon, with collaboration of the CESOP–Portuguese Catholic University and was funded by the Champalimaud Foundation, the Gulbenkian Foundation, the Foundation for Science and Technology (FCT) and the Ministry of Health. The Portuguese Mental Health Study was carried out in conjunction with the World Health Organization WMH Survey Initiative which is supported by the National Institute of Mental Health (NIMH; R01MH070884), the John D. and Catherine T. MacArthur Foundation, the Pfizer Foundation, the US Public Health Service (R13-MH066849, R01-MH069864 and R01 DA016558), the Fogarty International Center (FIRCA R03-TW006481), the Pan American Health Organization, Eli Lilly and Company, Ortho-McNeil Pharmaceutical, GlaxoSmithKline and Bristol-Myers Squibb. The National Mental Health Survey Follow-up was funded by the Public Health Initiatives Programme (PT06), financed by EEA Grants Financial Mechanism 2009–2014. For further information, please visit <http://www.eegrants.gov.pt/>.

Conflict of interest. None.

Ethical standards. The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

Availability of data and materials. The authors do not have permission to share the data of this study.

References

- Allen J, Balfour R, Bell R and Marmot M (2014) Social determinants of mental health. *International Review of Psychiatry* 26, 392–407.
- Alonso J, Angermeyer MC, Bernert S, Bruffaerts R, Brugha TS, Bryson H, de Girolamo G, Graaf R, Demeyttenaere K, Gasquet I, Haro JM, Katz SJ, Kessler RC, Kovess V, Lépine JP, Ormel J, Polidori G, Russo LJ, Vilagut G, Almansa J, Arbabzadeh-Bouchez S, Autonell J, Bernal M, Buist-Bouwman MA, Codony M, Domingo-Salvany A, Ferrer M, Joo SS, Martínez-Alonso M, Matschinger H, Mazzi F, Morgan Z, Morosini P, Palacín C, Romera B, Taub N and Vollebergh WA (2004) Disability and quality of life impact of mental disorders in Europe: results from the European Study of the Epidemiology of Mental Disorders (ESEMeD) project. *Acta Psychiatrica Scandinavica* 109, 38–46.
- Alonso J, Petukhova M, Vilagut G, Chatterji S, Heeringa S, Üstün TB, Alhamzawi AO, Viana MC, Angermeyer M, Bromet E, Bruffaerts R, de Girolamo G, Florescu S, Gureje O, Haro JM, Hinkov H, Hu C, Karam EG, Kovess V, Levinson D, Medina-Mora ME, Nakamura Y, Ormel J, Posada-Villa J, Sagar R, Scott KM, Tsang A, Williams DR and Kessler RC (2011) Days out of role due to common physical and mental conditions: results from the WHO World Mental Health surveys. *Molecular Psychiatry* 16, 1234–1246.
- Bambra C (2011) Health inequalities and welfare state regimes: theoretical insights on a public health 'puzzle'. *Journal of Epidemiology and Community Health* 65, 740–745.
- Caldas-de-Almeida J, Xavier M, Cardoso G, Pereira M, Gusmão R, Corrêa B, Gago J, Talina M and Silva J (2013) *Estudo Epidemiológico Nacional de Saúde Mental – 1º Relatório* (National Mental Health Epidemiological Study – 1st Report). Nova Medical School: Lisbon.
- Cardoso G, Xavier M, Vilagut G, Petukhova M, Alonso J, Kessler RC and Caldas-De-Almeida JM (2017) Days out of role due to common physical and mental conditions in Portugal: results from the WHO World Mental Health Survey. *The British Journal of Psychiatry Open* 3, 15–21.

- Carmo RM, Carvalho M and Cantante F** (2015) The persistence of class inequality: the Portuguese labour force at the turn of the millennium. *Sociological Research Online* **20**, 1–17.
- Cook JA** (2006) Employment barriers for persons with psychiatric disabilities: update of a report for the President's Commission. *Psychiatric Services* **57**, 1391–1405.
- De Graaf R, Tuithof M, Van Dorsselaer S and Ten Have M** (2012) Comparing the effects on work performance of mental and physical disorders. *Social Psychiatry and Psychiatric Epidemiology* **47**, 1873–1883.
- Ekberg K, Wåhlin C, Persson J, Bernfort L and Öberg B** (2015) Early and late return to work after sick leave: predictors in a cohort of sick-listed individuals with common mental disorders. *Journal of Occupational Rehabilitation* **25**, 627–637.
- Elwell-Sutton T, Folb N, Clark A, Fairall LR, Lund C and Bachmann MO** (2017) Socioeconomic position and depression in South African adults with long-term health conditions: a longitudinal study of causal pathways. *Epidemiology and Psychiatric Sciences* 1–11.
- Ervasti J, Vahtera J, Pentti J, Oksanen T, Ahola K, Kivimäki M and Virtanen M** (2013) Depression-related work disability: socioeconomic inequalities in onset, duration and recurrence. *PLoS ONE* **8**, e79855.
- European Commission** (2014) The economic adjustment programme for Portugal 2011–2014. European Commission, Brussels.
- Eurostat** (2018) Total unemployment – LFS series. Unemployment rates by sex, age and nationality. Available at <http://ec.europa.eu/eurostat/web/lfs/data/database> (Accessed January 2018).
- Evans-Lacko S, Knapp M, McCrone P, Thornicroft G and Mojtabai R** (2013) The mental health consequences of the recession: economic hardship and employment of people with mental health problems in 27 European countries. *PLoS ONE* **8**, e69792.
- Farinha Rodrigues C, Figueiras R and Junqueira V** (2016) *Desigualdade do Rendimento e Pobreza em Portugal: As consequências sociais do programa de ajustamento* (Inequality of Income and Poverty in Portugal: The social consequences of the adjustment program.) Francisco Manuel dos Santos Foundation, Lisbon.
- First MB and Gibbon M** (2004) The Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) and the Structured clinical interview for DSM-IV axis II disorders (SCID-II). In Hilsenroth M, Segal D and Hersen M (eds), *Comprehensive Handbook of Psychological Assessment, Personality Assessment*, 1st Edn. New York: Wiley, pp. 134–143.
- Frasquilho D, Matos MG, Salonna F, Guerreiro D, Storti CC, Gaspar T and Caldas-de-almeida JM** (2016) Mental health outcomes in times of economic recession: a systematic literature review. *BMC Public Health* **16**, 115.
- Fryers T, Melzer D and Jenkins R** (2003) Social inequalities and the common mental disorders – a systematic review of the evidence. *Social Psychiatry and Psychiatric Epidemiology* **38**, 229–237.
- Galobardes B, Shaw M, Lawlor DA, Lynch JW and Davey Smith G** (2006) Indicators of socioeconomic position (part 1). *Journal of Epidemiology and Community Health* **60**, 7–12.
- Haro JM, Arbabzadeh-Bouchez S, Brugha TS, De Girolamo G, Guyer ME, Jin R, Lepine JP, Mazzi F, Reneses B, Vilagut G, Sampson NA and Kessler RC** (2006) Concordance of the Composite International Diagnostic Interview Version 3.0 (CIDI 3.0) with standardized clinical assessments in the WHO World Mental Health Surveys. *International Journal of Methods in Psychiatric Research* **15**, 167–180.
- Karanikolos M, Mladovsky P, Cylus J, Thomson S, Basu S, Stuckler D, Mackenbach JP and McKee M** (2013) Financial crisis, austerity, and health in Europe. *The Lancet* **381**, 1323–1331.
- Kessler RC and Üstün TB** (2004) The World Mental Health (WMH) Survey Initiative Version of the World Health Organization (WHO) Composite International Diagnostic Interview (CIDI). *International Journal of Methods in Psychiatric Research* **13**, 93–121.
- Kessler RC, Heeringa S, Lakoma MD, Petukhova M, Rupp AE, Schoenbaum M, Wang PS and Zaslavsky AM** (2008) Individual and societal effects of mental disorders on earnings in the United States: results from the National Comorbidity Survey Replication. *The American Journal of Psychiatry* **165**, 703–711.
- Kessler RC, Aguilar-Gaxiola S, Alonso J, Chatterji S, Lee S, Ormel J, Üstün TB and Wang PS** (2011) The global burden of mental disorders: an update from the WHO World Mental Health (WMH) surveys. *Epidemiologia e Psichiatria Sociale* **18**, 23–33.
- Knight M, Stewart-Brown S and Fletcher L** (2001) Estimating health needs: I impact of a checklist of conditions and quality of life measurement on health information derived from community surveys. *Journal of Public Health Medicine* **23**, 179–186.
- Knudsen AK, Harvey SB, Mykletun A and Overland S** (2013) Common mental disorders and long-term sickness absence in a general working population. The Hordaland Health Study. *Acta Psychiatrica Scandinavica* **127**, 287–297.
- Lahelma E** (2004) Pathways between socioeconomic determinants of health. *Journal of Epidemiology & Community Health* **58**, 327–332.
- Lahelma E, Pietiläinen O, Rahkonen O and Lallukka T** (2015) Common mental disorders and cause-specific disability retirement. *Occupational and Environmental Medicine* **72**, 181–187.
- Legido-Quigley H, Karanikolos M, Hernandez-Plaza S, de Freitas C, Bernardo L, Padilla B, Machado RS, Diaz-Ordaz K, Stuckler D and McKee M** (2016) Effects of the financial crisis and Troika austerity measures on health and health care access in Portugal. *Health Policy* **120**, 833–839.
- Lund C, Myer L, Stein DJ, Williams DR and Flisher AJ** (2013) Mental illness and lost income among adult South Africans. *Social Psychiatry and Psychiatric Epidemiology* **48**, 845–851.
- Lund C, Stansfeld S and De Silva M** (2014) Social determinants of mental health. In Patel V, Minas H, Cohen A and Prince MJ (eds), *Global Mental Health: Principles and Practice*. Oxford University Press: Oxford, pp. 116–136.
- Manisera M, Kooij A and Dusseldorp E** (2010) Identifying the component structure of satisfaction scales by nonlinear principal components analysis Marica. *Quality Technology & Quantitative Management* **7**, 97–115.
- Marmot SM, Bloomer E and Goldblatt P** (2013) The role of social determinants in tackling health objectives in a context of economic crisis. *Public Health Reviews* **35**, 1–24.
- Mojtabai R, Stuart EA, Hwang I, Susukida R, Eaton WW, Sampson N and Kessler RC** (2015) Long-term effects of mental disorders on employment in the National Comorbidity Survey ten-year follow-up. *Social Psychiatry and Psychiatric Epidemiology* **50**, 1657–1668.
- OECD** (2015) National Accounts at a Glance 2015. OECD Publishing.
- Parmar D, Stavropoulou C and Ioannidis JPA** (2016) Health outcomes during the 2008 financial crisis in Europe: systematic literature review. *British Medical Journal* **354**, i4588.
- Prince M** (2012) Epidemiology. In Wright P, Stern J and Phelan M (eds), *Core Psychiatry*. Saunders Elsevier: Philadelphia, pp. 115–129.
- Saraceno B, Levav I and Kohn R** (2005) The public mental health significant of research on socio-economic factors in schizophrenia and major depression. *World Psychiatry* **4**, 181–185.
- Schofield DJ, Shrestha RN, Percival R, Passey ME, Callander EJ and Kelly SJ** (2011) The personal and national costs of mental health conditions: impacts on income, taxes, government support payments due to lost labour force participation. *BMC Psychiatry* **11**, 72.
- Scott K, Al-Hamzaw A, Andrade L, Borges G, Caldas-de-Almeida J, Fiestas F, Gureje O, Hu C, Karam E, Kawakami N, Lee S, Levinson D, Lim C, Navarro-Mateu F, Okoliyski M, Posada-Villa J, Torres Y, Williams D, Zakhosha V, Kessler R** (2014) Associations between subjective social status and DSM-IV Disorders: results from the World Mental Health Surveys. *JAMA Psychiatry* **71**, 1400–1408.
- Whiteford H, Degenhardt L, Rehm J, Baxter J, Ferrari J, Erskine HE, Charlson FJ, Norman RE, Flaxman D, Johns N, Burstein R, Murray CJ and Vos T** (2013) Global burden of disease attributable to mental and substance use disorders: findings from the Global Burden of Disease Study 2010. *The Lancet* **382**, 1575–1586.
- World Health Organization and Calouste Gulbenkian Foundation** (2014) *Social Determinants of Mental Health*. World Health Organization, Geneva.
- Xavier M, Baptista H, Mendes JM, Magalhães P and Caldas-de-Almeida JM** (2013) Implementing the World Mental Health Survey Initiative in Portugal – rationale, design and fieldwork procedures. *International Journal of Mental Health Systems* **7**, 19–28.
- Zartaloudis S** (2014) The impact of the fiscal crisis on Greek and Portuguese welfare states: retrenchment before the catch-up? *Social Policy and Administration* **48**, 430–449.