



ELSEVIER

Contents lists available at ScienceDirect

Journal of Affective Disorders

journal homepage: www.elsevier.com/locate/jad

Research report

Characteristics of people dying by suicide after job loss, financial difficulties and other economic stressors during a period of recession (2010–2011): A review of coroners' records

Caroline Coope^a, Jenny Donovan^a, Caroline Wilson^a, Maria Barnes^a, Chris Metcalfe^a, William Hollingworth^a, Nav Kapur^b, Keith Hawton^c, David Gunnell^{a,*}

^a School of Social and Community Medicine, University of Bristol, Canynge Hall, 39 Whatley Road, Bristol BS8 2PS, UK

^b Centre for Suicide Prevention, Centre for Mental Health and Risk, Institute of Brain, Behaviour and Mental Health, The University of Manchester, Oxford Road, Manchester M13 9PL, UK

^c Centre for Suicide Research, University of Oxford, Department of Psychiatry, Warneford Hospital, Headington, Oxford OX3 7JX, UK

ARTICLE INFO

Article history:

Received 18 December 2014

Received in revised form

24 April 2015

Accepted 24 April 2015

Available online 4 May 2015

Keywords:

Economic recession

Suicide

Coroners' records

England

ABSTRACT

Background: Suicide rates increase during periods of economic recession, but little is known about the characteristics of people whose deaths are related to recession, the timing of risk in relation to job loss, the nature of financial stresses and the sources of help individuals used.

Methods: We extracted information on social and economic circumstances, mental health and help-seeking from the coroners' records of 286 people who died by suicide in 2010 and 2011 in four areas of England. We graded each death on a 5-point scale of 'recession-relatedness', measuring the extent to which recession, employment and financial problems contributed to the death.

Results: Financial and employment-related issues contributed substantially to 38 (13%) of the deaths and were thought to be the key contributing factor in 11 (4%). Individuals whose deaths were thought to be related to the recession were less likely to have previously self-harmed but were more likely to be employed (61% vs. 43%), have financial difficulties (76% vs. 23%) and financial dependents (55% vs. 23%). Amongst the subset of 11 people where financial/employment issues were the key contributory factor, only two (18%) had ever had contact with psychiatric services.

Limitations: Details on finances and employment were not systematically recorded by coroners. We found richer information was usually available for people who were living with other people.

Conclusions: Financial difficulties, little past psychiatric history, low levels of service contact and having financial dependents were more common in 'recession-related' deaths. This suggests that interventions to prevent recession-related rises in suicide should be focused on non-clinical agencies and initiatives.

© 2015 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Periods of economic recession are associated with rises in suicide (Chang et al., 2009; Haw et al., 2015; Stuckler et al., 2009). In keeping with this the 2008 economic recession was followed by an increased incidence of suicide in many parts of world (Chang et al., 2013) including England and Wales (Barr et al., 2012; Coope et al., 2014), where a previous downward trend in suicide between 2001 and 2006 reversed from 2007. Suicide rates in young males were particularly affected by the economic recession (Chang et al., 2013; Coope et al., 2014).

Recessions lead to a range of stresses that may have an impact on population mental health (Haw et al., 2015). Key stressors include job loss, debt, house repossession and the strains put on relationships by employment and financial problems; these may be exacerbated by Government austerity measures such as cuts in welfare spending and health care budgets (Karanikolos et al., 2013).

Most studies investigating the impact of economic recession on mental health have focussed on changes in the incidence of suicide, suicide attempts and depression. Few investigators have sought to identify the specific characteristics of people dying by suicide due to employment, financial or other related difficulties during periods of recession. Evidence from ecological studies suggests that less than half of the rise in suicide that occurs during periods of recession can be explained by increases in unemployment (Barr et al., 2012; Chang et al., 2009). A recent study of European data has highlighted the

* Corresponding author. Tel.: +44 117 9287253; fax: +44 117 928 7325.

E-mail address: D.J.Gunnell@bristol.ac.uk (D. Gunnell).

importance of debt as well as job loss in explaining rises in suicide (Reeves et al., 2014). Investigations of medical examiner (USA) and coroner (Wales) records have further clarified the importance of different economic factors in suicide. In an analysis of 675 people who died by suicide in an urban area of the USA between 1997 and 2000, review of the inquest records indicated that in 62 individuals (9%) there was evidence of economic strain; key stressors were job loss and loss of a home, in only one case was anticipated job loss a contributory factor (Stack and Wasserman, 2007). In over two-thirds of the deaths, multiple strains appeared to contribute – particularly economic strain accompanied by relationship difficulties. In a study of suicide deaths between 2002 and 2005 in an area of Wales, debt and employment problems were mentioned as contributors to 23% of male suicides (Scourfield et al., 2012). Neither of these studies was carried out during a period of recession.

A number of questions remain unresolved concerning suicide due to employment, financial or other difficulties during periods of recession. Amongst those whose death by suicide is precipitated by job loss, it is unclear when the period of greatest risk occurs and what might be done to offset this risk. It is also unclear whether it is possible to identify groups at particular risk of suicide during a recession – for example, those experiencing specific types of debt and which organisations they are in contact with around the time of their death. Such information may enable the development of targeted interventions.

Here we describe a study of the inquest records of 286 suicide deaths in 2010–2011. Our aim was to investigate the characteristics and opportunities for prevention of suicides precipitated by the 2008 economic recession. Specifically we compare the demographic, clinical, socio-economic and employment characteristics of ‘recession-related’ deaths vs. other suicides. We define ‘recession-related’ suicides as those where the precipitants to the death appeared to be mostly, or completely, related to employment, financial or other recession-related difficulties such as welfare benefit reforms. We acknowledge that the economic and employment-related problems associated with these deaths do not only occur at times of recession.

2. Methods

2.1. Coroners' districts

The study was based on a sample of inquest records of suicides occurring between 2010 and 2011 in four coroner jurisdictions in England – Avon (Bristol), Hampshire, Manchester and Northampton. We selected these Coroners as we had collaborated with them on previous studies (Gunnell et al., 2013), they were in different geographic regions of England but close to our research centres and the populations they served were socioeconomically heterogeneous, but all had experienced rises of greater than 50% in unemployment between 2007 and 2010. Coroner's ledgers and databases were searched to identify all deaths of persons aged 16–65 years given a verdict of suicide by the Coroner. We did not include deaths given narrative or open verdicts as we wished to concentrate focus on deaths identified by the coroner as unequivocally due to suicide. We focused on working aged adults as they are the group most affected by the economic recession (Chang et al., 2013). We selected the years 2010–2011 as redundancies did not peak until mid-2009 (Coope et al., 2014) and we wished to study deaths occurring when the wider effects of the recession were well established.

2.2. Data collection

A data collection proforma, based on our previous studies of coroner records (Bennewith et al., 2005) but extended to capture

enhanced information about possible ‘recession-related’ risk factors, was designed and used to ensure a systematic approach to data extraction. The ‘recession-related’ risk factors we focused on were employment, financial, housing or other difficulties as a result of welfare benefit reforms. We acknowledge that these stressors can occur at any time and are not restricted to times of recession, albeit the fear of job loss and unemployment may increase markedly at these times. Demographic, socio-economic and clinical data were extracted from the inquest files by two researchers (CC and CW). We recorded demographic details of the deceased (age, sex, marital status, living circumstances and last known occupation categorised using the standard occupational classification (SOC2010)), evidence of financial or employment difficulties, psychiatric and medical history, whether they had previously self-harmed and contact with services in the period leading up to their death. After reading the records the researchers wrote a vignette of up to 700 words describing the relevant history and circumstances preceding the death, where possible in chronological order, including details of financial or employment problems and previous psychiatric history. We collected particularly detailed information on employment and financial circumstances where these were recorded.

2.2.1. Employment information

We recorded whether the deceased was (a) employed or unemployed, and the time since job loss for those who were unemployed; (b) in a job ‘at risk’ (i.e. being given notice of redundancy/consultation period or notice of risk of redundancy); (c) on sick leave at the time of death.

2.2.2. Financial problems

We recorded where financial problems were mentioned. We also recorded whether the deceased had any financial dependents – e.g. children at home or a non-employed spouse.

The amount of information recorded in Coroners' records varies from case to case (Bennewith et al., 2005). For some specific recession-related problems, such as financial or housing difficulties, we recorded whether or not such problems were mentioned in the records. The absence of such information does not necessarily mean these problems were not present; it may have been unknown to informants, deemed less important than other stressors, or simply not recorded in the Coroners' files.

2.3. Recession-relatedness score

Following completion of each inquest record review the researchers assessed the extent to which the factors which precipitated the suicide appeared to be recession/employment/finance related and scored each case on a five-point scale from 1 ‘not at all’ to 5 ‘completely’ related (see Box 1). To increase the consistency of scoring, we rated and discussed differences in ratings for 10 vignettes at the beginning of the study. Examples of edited vignettes scoring 5, 3 and 1 are given in Box 2. Scores of 5 were generally given where no problems other than financial or employment difficulties were mentioned; people with such problems and a history of long term mental illness were more likely to score 3 or 4. The vignettes of each case, together with additional information on date of death, past psychiatric history, most recent contact with psychiatric services, psychiatric diagnosis and history of self-harm were rated by a second researcher (DG). Where there was disagreement between the first and second reviewer's scores a third researcher (JD) reviewed the vignettes and a discussion was held to reach a consensus score (this was necessary in 106 (37%) cases). Levels of agreement between the first and second assessors

Box 1–Assessment of the extent to which the precipitating factors for each suicide case appeared to be recession/employment/finance related, scored 1–5.

Score given	Recession/employment/finance relatedness				
	Not at all (0%)	Only a little (25%)	Some (50%)	A lot (75%)	Completely (100%)
1	2	3	4	5	
<i>n</i>	130	59	59	27	11
%	45.5	20.6	20.6	9.4	3.9

Box 2–Edited examples of vignettes scored 5 (completely recession-related), 3 (some recession-relatedness) and 1 (not at all recession-related).

Score 5 – completely recession-related
<ol style="list-style-type: none"> The deceased was a man in his 50s with no previous mental health problems. He had worked as a manager for the same company for many years, but the business was not doing well and he was given a lower paid role. He had been worrying about his debts the night before his death. The deceased was a middle aged man who lived with his partner and one of their children. He'd worked as a manager for the same company for many years until he resigned a few months before his death. Several-years prior to his death the deceased had been given sick-leave due to work related stress, but there was no other history of mental illness. The deceased was unable to find other employment and was reported to have felt ashamed having to go to the job centre to claim benefits, and also that he found the role reversal, with his partner as the main breadwinner, hard. On the day of his death it was reported that he had spoken with an employment agency regarding future employment and been given bad news about this.
<p>Score 3 – some recession-relatedness</p> <ol style="list-style-type: none"> The deceased was a divorced man in his 50s. He had gone to his GP in the year before his death complaining of being unable to cope because of work and domestic pressures; he was prescribed antidepressants. He reported symptoms of depression over the past two years. He reported suicide plans. He was admitted to a psychiatric hospital. After discharge he received ongoing mental health follow-up and therapy but his mental health continued to fluctuate. He was offered early retirement, which he declined, but was considering returning to another post or his old one. He took a fatal overdose of his medication. The deceased was a middle-aged woman. She had been in a long-term relationship which had recently broken up. A friend reported that they felt the recession and consequent delay to promised promotion had resulted in work stress. The deceased had reported feeling low for over a year and had received treatment for this. She had attempted suicide a few months prior to her death. She was taking antidepressant medication.
<p>Score 1 – not at all recession-related</p> <ol style="list-style-type: none"> The deceased was a middle-aged divorced lady. She had multiple physical health problems including diabetes and a recent cancer diagnosis. She also had a history of depression and taking overdoses. She was found at home having taken a lethal overdose of medicine. She was receiving antidepressant medication and this had been regularly reviewed by her psychiatrist and CPN, but had recently been discharged because of improvements in her health. Due to her mental health problems, she was not given access to see her grandchildren and expressed unhappiness about this in her suicide note. The deceased was a man in his 30s. Since his divorce a few years previously he lived with his mother. He had suffered with depression and was taking anti-depressants. His medical reports indicated a history of alcohol dependence, depression and self-harm.

for the 1–5 score were moderate ($\kappa=0.47$), and for the binary 1–3/4–5 score, substantial, ($\kappa=0.62$).

For most analyses we transformed the 5-point Likert scale into a binary variable, identifying suicides as 'recession-related' if the scores were 4 or 5 (i.e. a lot/completely related to recession, employment or financial issues). For simplicity we refer to these suicides as 'recession-related' throughout the paper. In a secondary analysis we described the characteristics of participants across

the range of scores, focusing on those scoring 5 (completely related to employment or financial issues).

2.4. Statistical analysis

Analyses were carried out using Stata version 13.1 for Windows (StataCorp, 2014). We used the Chi-square and Fisher's Exact Test for binary and categorical variables, and the two-sample *t*-test with

unequal variance for continuous variables to compare the characteristics of suicide deaths according to recession-relatedness.

2.5. Ethics

The study was approved by Faculty of Medicine and Dentistry Committee for Research Ethics, University of Bristol.

3. Results

3.1. The sample

We identified 286 people who died by suicide; 226 (79%) of whom were males. The mean age at death was 41.9 years. Amongst the 264 deaths with information on ethnicity, 254 (89%) were white and amongst the 276 with information on marital status, 89 (32%) were married, cohabiting or in a civil partnership, 111 (40%) were single and 76 (28%) were widowed, divorced or separated (see Appendix 1). We classified 11 (4%) of the deaths as completely due to recession / employment / financial problems and in 27 (9%) judged these factors to have contributed substantially to the suicide (Box 1). Of note, in only 130 (46%) of the deaths from suicide were recession/employment or finance related difficulties thought to have played no part at all. We compared the 38 (13%) people whose suicide was recession-related with the other 248 people dying by suicide.

3.2. Socio-demographic characteristics

There was no difference in the gender distribution of people whose suicide was recession-related compared with the other people dying by suicide. People whose suicide was recession-related were somewhat older than other people dying by suicide, but there is only weak statistical evidence for this age difference ($p=0.05$) (Table 1). A higher proportion of people whose suicide was recession-related were in the married/cohabiting/civil partnership group. Also more were living alone, with their partner or with their partner and children than other suicides, but again these differences are consistent with chance.

3.3. Clinical characteristics and contacts with services

A higher proportion of people whose suicide was recession-related, compared with other people dying by suicide, had no clear recorded evidence of psychiatric illness (15/38, 39% vs. 59/248, 24%), and a smaller proportion had previously self-harmed (12/38, 32% vs. 126/248, 51%) (Table 2). A smaller proportion of the people whose suicide was recession-related compared with other people dying by suicide were in contact with psychiatric services at the time of their death (8/38, 21% vs. 73/248, 29%), and of those people with information on their last GP visit (> 80% of cases) the proportion visiting their GP in the 4 weeks before death was 36% (12/33) and 45% (90/201) respectively.

3.4. Socio-economic and employment characteristics

There was no statistical evidence of a difference in socio-economic position between individuals whose deaths were related to the recession compared with the other people dying by suicide. However, a larger proportion of those whose deaths were recession-related came from the highest socio-economic groups of managers, directors and senior officials and professional occupations (Table 3). Employment status and duration of unemployment also differed between the two groups. Where employment status was known, a larger proportion of people whose suicide

Table 1
Socio-demographic characteristics of recession-related and other suicides.

Socio-demographic characteristics	Recession-relatedness			
	Not at all – some (score 1–3) (n=248)		A lot – completely (score 4 and 5) (n=38)	
	n	%	n	%
Gender				
Male	195	78.6	31	81.6
Female	53	21.4	7	18.4
p-Value				0.831
Mean age in years (SD)	41.3	12.4	45.5	11.2
p-Value				0.048
Age group				
16–24	32	12.9	2	5.3
25–34	44	17.7	5	13.2
35–44	60	24.2	11	29.0
45–54	76	30.7	13	34.2
55–65	356	14.5	7	18.4
p-Value				0.607
Marital status				
Single	98	39.5	13	34.2
Married/cohabiting/civil partnership	72	29.0	17	44.7
Divorced/widowed/separated	70	28.2	6	15.8
Other/not known	8	3.2	2	5.3
p-Value ^a				0.093
Ethnicity				
White	219	88.3	35	92.1
Black/Asian	6	3.6	1	2.6
Not known	20	8.1	2	5.3
p-Value ^a				1.000
Living circumstances				
Alone	78	31.5	14	36.8
With partner/spouse	52	21.0	12	31.6
With partner/spouse and children	14	5.7	5	13.2
Other family members/others	78	31.5	6	15.8
Hospital/supportive/sheltered housing	14	5.7	1	2.6
Other	12	4.8	–	0.0
p-Value ^a				0.088

p-Value for binary and categorical variables use Fisher's exact test, p-Value for difference in mean use two-sample t-test.

^a Excluding 'not known/other' for Fisher's exact test.

was recession-related were in employment (23/38, 61%) compared to other people dying by suicide (94/221; 43%). In the employed group, six people whose suicide was recession-related (26%, 6/23) were on sick leave at the time of their death compared with 14 people whose suicide was due to other reasons (15%, 14/94). Only three of the suicides (1%) – two of whom were people whose deaths were recession-related – were in employment and had jobs that were 'at risk'. Where information was recorded on duration of unemployment, 67% (8/12) of people whose suicide was recession-related had been unemployed for 1 year or less compared with 27% (6/22) of other people dying by suicide, most of whom had been unemployed for over 1 year. Amongst the 12 people whose deaths were recession-related where the time they had been unemployed was recorded, two (17%) had been unemployed for less than 1 month and three (25%) for 1–5 months; the majority (7/12, 58%) had been unemployed for more than 6 months. A considerably higher proportion of people whose suicide was recession-related (29/38, 76%) had financial problems recorded as contributing to their death, compared with other people dying by suicide (56/248, 23%), and a higher proportion (21/38, 55% vs. 58/248, 23%) were recorded as having financial responsibility for people, most often children and spouses. Of people whose suicide was recession-related who had experienced financial difficulties only 9/29 (31%) were unemployed.

There were few details of the type of financial problems people were facing. Sources of debt and financial difficulties were only

Table 2
Clinical characteristics and service use of recession related and other suicides.

Clinical and service use characteristics	Recession-relatedness			
	Not at all – some (1–3) (n=248)		A lot – completely (4 and 5) (n=38)	
	n	%	n	%
Psychiatric disorder at time of death				
Yes	159	64.1	21	55.3
No	36	14.5	6	15.8
Probably	30	12.1	2	5.3
Not known	23	9.3	9	23.7
p-Value ^a				0.546
Primary psychiatric diagnosis				
Affective disorder ^b	128	51.6	16	42.1
Alcohol/drug dependence	28	11.3	6	15.8
Psychotic disorder/other ^c	33	13.3	1	2.6
None	59	23.8	15	39.5
p-Value				0.057
Previous self-harm attempt				
Yes	126	50.8	12	31.6
No	122	49.2	26	68.4
p-Value				0.036
Ever contact with psychiatric services				
Yes	131	52.8	17	44.7
No	117	47.2	21	55.3
p-Value				0.387
Most recent contact with psychiatric services				
At time of death	73	29.4	8	21.1
During last year	27	10.9	2	5.3
More than 1 year/do not know	31	12.5	7	18.4
No contact	117	47.2	21	55.3
p-Value ^a				0.326
Time between last GP visit and death				
< = week–1 month	90	36.3	12	31.6
> 1–6 months	66	26.6	17	44.7
> 6 months	45	18.2	4	10.5
Not known	47	19.0	5	13.2
p-Value ^c				0.109

p-Value for Fisher's exact test. ^a Excluding 'not known' group for Fisher exact test.

^b Includes depression, bipolar affective disorder (BAD) and anxiety.

^c Includes adjustment disorder, personality disorder, OCD, alcohol related mania, agoraphobia, PTSD, drug induced psychosis.

recorded for 18 of the 29 of people whose suicide was recession-related with financial problems. Where this information was available, the most frequent sources of debt were loans (including student loans) (5/18; 28%), mortgage/rent arrears (4/18; 22%) and own business related debt and tax issues (4/18; 22%) (Appendix 2).

It is noteworthy that in terms of absolute numbers, most of the people who died by suicide who were unemployed (94/109 86%) or who were experiencing financial difficulties (56/85: 66%) were amongst the group of individuals whose deaths were not thought to be related to the economic recession.

3.5. Suicides entirely due to recession, employment or financial-related problems

The characteristics of the people who died by suicide in each of the five 'recession-relatedness' scores are given in web Appendices 3–5. Eleven deaths (4%) were thought to be entirely due to financial/employment-related difficulties. The characteristics of these individuals differed from other people who died by suicide; all were male and they were older than the other groups – only two (18%) were under 35 years of age. The majority (9/11, 82%) were married or cohabiting and had financial dependents. Few (2/11; 18%) had ever had contact with psychiatric services and none had previously self-harmed. Only two (18%) had been in contact with their GP in the month before death. Five (45%) were still employed. Of the six who were unemployed, four had been out of work for less than 6 months. One third (4/11, 36%) were self-employed and nine (82%) were in the upper two socioeconomic

groups. Six (55%) had financial problems and where employment sector was recorded, the proportion of self-employed increased from 21% (9/43) to 40% (4/10) across scores 1–5, although statistical evidence of differences between employment categories was limited ($p=0.64$).

4. Discussion

4.1. Main findings

Recession, employment and financial-related difficulties contributed substantially to 13% of the suicides in this study. Financial problems were considerably more common than job loss in this group. A similar proportion (around half) of people whose suicide was 'recession-related' and other people who died by suicide had had past contact with psychiatric services, suggesting similar levels of vulnerability to mental health problems in both groups. However, in the sub group of eleven people whose suicide was most clearly recession-related only two, one fifth, had a history of previous contact with psychiatric services. Just under one third of people whose suicide was recession-related had visited their GP in the month before their death.

Those people whose suicide was recession-related were more likely to be employed at the time of their death than other people dying by suicide. Over two thirds of those who had experienced financial difficulties were still in employment. The challenge for employed people may be that their job did not pay enough to

Table 3
Socioeconomic and employment characteristics of recession related and other suicides.

Socioeconomic and employment characteristics	Recession-relatedness			
	Not at all – some (1 - 3) (n=248)		A lot – completely (4 and 5) (n=38)	
	n	%	n	%
Soc2010 recorded at time of death				
Managers, directors and senior officials	14	5.7	8	21.1
Professional occupations	29	11.7	5	13.2
Associate professional and technical	9	3.6	2	5.3
Administrative and secretarial	11	4.4	3	7.9
Skilled metal, electrical and electronic	36	14.5	9	23.7
Caring, leisure and other service	13	5.2	1	2.6
Sales and customer service	6	2.4	1	2.6
Process, plant and machine operatives	22	8.9	2	5.3
Elementary occupations	27	10.9	3	7.9
Other ^a	17	6.9	-	-
Not known	64	25.8	4	10.5
p-Value ^b				0.132
Employment status				
Unemployed	94	37.9	15	39.5
Employed	93	37.5	21	55.3
Employed – job at risk	1	0.4	2	5.3
Other ^c	33	13.3	-	-
Not known	27	10.9	-	-
p-Value ^b				0.003
Unemployed – time unemployed (where info given) n=34				
< = 1 week–1 month	2	9.1	2	16.7
> 1–6 months	2	9.1	3	25.0
> 6 months–1 year	2	9.1	3	25.0
> 1 year	16	72.7	4	33.3
p-Value				0.117
Employment sector type (last employer)				
Public sector	19	7.7	5	13.2
Private sector	71	28.6	15	39.5
Self-employed	19	7.7	11	29.0
Not known	139	56.1	7	18.4
p-Value ^b				0.097
Financial problems				
Yes	56	22.6	29	76.3
Not known	192	77.4	9	23.7
p-Value				0.000
Financial dependents				
Yes	58	23.4	21	55.3
Not known	190	76.6	17	44.7
p-Value				0.000
Home loss				
Yes	15	6.1	5	13.2
No	233	93.9	33	86.8
p-Value				0.160

p-Values for Fisher's exact test.

^a Includes fulltime students, permanently sick, carers/home carers and no previous occupation.

^b Excluding 'not known' category from Fisher's exact test.

^c Includes retired, unemployment/retired due to ill-health, student and other.

service debts, with individuals accepting pay cuts, reduced hours or lower paid jobs to stay in work. Furthermore, individuals with severe mental illness are often excluded from the workforce. Nevertheless, unemployment and financial difficulties were also common amongst people whose suicide was not thought to be strongly related to the recession, highlighting the potential importance of accumulating levels of adversity contributing to suicide in general.

Sources of debt were rarely recorded; the most common were loans, mortgage/rent arrears and tax/business related. We found no evidence that the timing-of 'recession-related' suicides where job-loss was a contributory factor was clustered around the time of job loss. Only 17% of those individuals who had lost their job took their lives within a month of job loss and, 50% died 6 months or longer after job loss. Only two (5%) of the 'recession-related' suicides were related to fears of job loss.

4.2. Strengths/limitations

We studied a relatively large sample of people who died by suicide from four different areas of England, all of which had been affected by the recession. Full coroner records with associated statements from friends, family members, colleagues and medical staff who cared for the deceased were available.

There are four main limitations to this analysis. First, the level of detail of information recorded in coroners' records is highly variable and depends in part on the availability of key informants and clinical records. Information on sources of debt/employment problems and duration of unemployment was not systematically recorded by coroners. Such information was only recorded if a close contact thought it relevant and the absence of a record of such problems does not necessarily mean they did not exist. Likewise, evidence of mental illness at the time of death was in

part determined by whether or not the person was under the care of their GP or specialist mental health services. Psychological autopsy approaches – with in-depth interviewing of close contacts of the deceased – would be required to obtain a more comprehensive picture of the individual's mental health. Second, our classification of 'recession-relatedness' was likely to be influenced by the extent to which an individual had other co-existing problems and so deaths of people with pre-existing longstanding mental health problems may not have been included as 'recession-related', although there is clear evidence that such individuals are more likely to lose their jobs during periods of recession (Butterworth et al., 2012; Lundin et al., 2012). Overall levels of agreement between the first and second assessors for the 1–5 'recession-related' score were moderate, and for the binary 1–3/4 and 5 score, substantial. We therefore used the binary score for all of the main analysis in this study. Third, we did not include the period covering the first 18 months of the recession (late 2008/early 2009). Nevertheless the study period included a time when redundancies were occurring and austerity measures were being introduced, although many such measures (such as the UK's "bedroom tax" where people's housing benefits were cut if it was judged that the number of bedrooms in their house was in excess of their current needs) came into effect after 2011. Finally, we have no control (non-suicide) population in this study, our only comparisons being made between 'recession-related' and other deaths. However, many of the factors we examined are well recognised risk factors for suicide; our key aims were to identify potential key time periods (e.g. early or late following job loss), settings (e.g. primary care) and risks (e.g. financial difficulty, job loss) to evaluate the need, and targets for, interventions.

4.3. Comparison with previous literature

We are aware of two previous detailed investigations of suicides due to economic / employment-related difficulties, although neither of these focused on suicide deaths during a period of economic recession (Scourfield et al., 2012; Stack and Wasserman, 2007). Both studies were based on reviews of information recorded by the Medical Examiner/Coroner, so differences between studies in the proportion of people with economic or employment related difficulties could reflect differences in the extensiveness of information noted in the inquest records. The proportion of employment/financial related suicides in our study is higher than that reported by Stack (9%) but lower than Scourfield's figure (23% of male suicides), although we found that just under 40% of all people who died by suicide were unemployed and a quarter experienced financial difficulties. Both authors highlight the role of multiple strains, and in keeping with this many of the people whose suicide was recession-related were experiencing relationship difficulties, debt and unemployment as well as home loss.

The importance of financial difficulties and debt in suicidal behaviour is well-recognised (Meltzer et al., 2011; Yip et al., 2007). In an analysis of cross sectional data from the UK National Psychiatric Morbidity Survey, debt was associated with a two-fold increased risk in suicidal thoughts and the key sources of debt were credit card debt, mail order repayments and rent/mortgage arrears. In Reeves et al. (2014) recent analysis, debt and unemployment were the factors most strongly associated with rises in suicide during the recession in Europe.

Altogether we identified 4% of suicides as entirely related to the recession, employment or financial-related difficulties and a further 9% where such difficulties contributed a lot to the suicide. These figures are consistent with estimates of 'recession-related' rises in suicide in England and Wales of around 10% (Barr et al., 2012; Chang et al., 2013).

In contrast to recent epidemiological literature we found no strong evidence of an excess of young men amongst people whose suicide was recession-related (Chang et al., 2013). However our finding that levels of previous psychiatric contact were similar in recession related and other suicides is in keeping with previous studies showing those who are at risk of job loss during periods of recession are people with pre-existing mental health problems (Butterworth et al., 2012; Lundin et al., 2012).

4.4. Implications and opportunities for intervention

There is no clear period of heightened risk of suicide around the time of job loss, but two thirds of deaths amongst the unemployed occurred within one year of job loss in the people whose suicide was recession-related, indicating the importance of early interventions in this group. Over half of people whose suicide was recession-related were still employed at the time of their death, suggesting that interventions should focus on people both in, and out of work. Financial difficulties appear to be a particular risk factor, either alone or in combination with job loss – over three quarters of people whose suicide was recession-related experienced financial problems as a trigger to their deaths. Interventions aimed at raising awareness of the help available to people who are in debt and the sensitive management of debts by lenders, utility companies, landlords and local authorities may help offset risk. Interventions of this nature should be considered with some priority since other opportunities seem limited. Furthermore, the provision of training and advice to organisations and employees who are in contact with people experiencing financial or employment difficulties, such as the Royal College of Psychiatrist's advice on debt collection would seem sensible (Fitch and Davey, 2010).

Less than one third of the people whose suicide was recession-related were in contact with their GP in the month before their death, suggesting that primary care should not be the only setting for intervening to reduce 'recession-related' risk. Other sources of help the coroners' records identified were help-lines, citizens' advice bureau (CAB), family, utility providers, banks, the Internet and recruitment agencies: these may also be appropriate settings for interventions. High levels of previous mental health problems amongst 'recession-related' suicides – over half had had contact with specialist psychiatric services at some point in their lives – indicates the potential importance of interventions focused on individuals who are already vulnerable.

The small sub-group of people whose deaths by suicides were most strongly related to employment/financial difficulties appeared quite different from other individuals dying by suicide – few had had contact with psychiatric services and over 80% were married or cohabiting and had financial dependents. This may be the most important sub-group to target, but as many were self-employed and still in work and few had recently visited their GP, appropriate settings for interventions require further investigation.

Role of funding source

The funding source had no involvement in the data collection, analysis or writing of this manuscript.

Conflict of interest

DG, KH, and NK are members of the National Suicide Prevention Advisory Group (England). All other authors declare that they have no conflict of interest.

Acknowledgements

We are grateful to the coroners in Avon (Bristol), Northampton, Hampshire and Manchester for granting access to their records and to Avon & Wiltshire Mental Health Partnership NHS Trust for hosting the programme of research. We thank the

Programme steering committee (Professors Peter Jones, Jonathan Scourfield and Ella Arensman and Clare Wyllie (Samaritans)) for their advice. This paper presents independent research funded by the National Institute for Health Research (NIHR), United Kingdom under its Programme Grants for Applied Research scheme (RP-PG-0610-10026). The views expressed in this presentation are those of the authors and not necessarily those of the NHS, the NIHR, or the Department of Health. DG, JD and KH are NIHR Senior Investigators David Gunnell, Jenny Donovan and Keith Hawton are National Institute for Health Research Senior Investigators. NK is also supported by Manchester Mental Health and Social Care Trust.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at <http://dx.doi.org/10.1016/j.jad.2015.04.045>.

References

- Barr, B., Taylor-Robinson, D., Scott-Samuel, A., McKee, M., Stuckler, D., 2012. Suicides associated with the 2008–10 economic recession in England: time trend analysis. *BMJ* 345, e5142. <http://dx.doi.org/10.1136/bmj.e5142> (published 14 August 2012), 1–7.
- Bennewith, O., Hawton, K., Simkin, S., Sutton, L., Kapur, N., Turnbull, P., Gunnell, D., 2005. The usefulness of coroners' data on suicides for providing information relevant to prevention. *Suicide Life-Threat. Behav.* 35, 607–613.
- Butterworth, P., Leach, L., Pirkis, J., Kelaher, M., 2012. Poor mental health influences risk and duration of unemployment: a prospective study. *Soc. Psychiatry Psychiatr. Epidemiol.* 47, 1013–1021.
- Chang, S.-S., Gunnell, D., Sterne, J.A.C., Lu, T.-H., Cheng, A.T.A., 2009. Was the economic crisis 1997–1998 responsible for rising suicide rates in East/Southeast Asia? A time-trend analysis for Japan, Hong Kong, South Korea, Taiwan, Singapore and Thailand. *Soc. Sci. Med.* 68, 1322–1331.
- Chang, S.-S., Stuckler, D., Yip, P., Gunnell, D., 2013. Impact of 2008 global economic crisis on suicide: time trend study of 54 countries. *BMJ Open Access* 347, f5239.
- Coope, C., Gunnell, D., Hollingworth, W., Hawton, K., Kapur, N., Fearn, V., Wells, C., Metcalfe, C., 2014. Suicide and the 2008 economic recession: who is most at risk? Trends in suicide rates in England and Wales 2001–2011. *Soc. Sci. Med.* 117, 76–85.
- Fitch, C., Davey, R., 2010. Debt collection and Mental Health: Ten Steps to Improve Recovery. Royal College of Psychiatrists and the Money Advice Trust, London p. 20.
- Gunnell, D., Bennewith, O., Simkin, S., Cooper, J., Klineberg, E., Rodway, C., Sutton, L., Steeg, S., Wells, C., Hawton, K., Kapur, N., 2013. Time trends in coroners' use of different verdicts for possible suicides and their impact on officially reported incidence of suicide in England: 1990–2005. *Psychol. Med.* 43, 7.
- Haw, C., Hawton, K., Gunnell, D., Platt, S., 2015. Economic recession and suicidal behaviour: possible mechanisms and ameliorating factors. *Int. J. Soc. Psychiatry* 61, 73–81.
- Karanikolos, M., Mladovsky, P., Cylus, J., Thomson, S., Basu, S., Stuckler, D., Mackenbach, J.P., McKee, M., 2013. Financial crisis, austerity, and health in Europe. *Lancet* 381, 1323–1331.
- Lundin, A., Lundberg, I., Allebeck, P., Hemmingsson, T., 2012. Unemployment and suicide in the Stockholm population: a register-based study on 771,068 men and women. *Public Health* 126, 371–377.
- Meltzer, H., Bebbington, P., Brugha, T., Jenkins, R., McManus, S., Dennis, M.S., 2011. Personal debt and suicidal ideation. *Psychol. Med.* 41, 771–778.
- Reeves, A., McKee, M., Gunnell, D., Chang, S.-S., Basu, S., Barr, B., Stuckler, D., 2014. Economic shocks, resilience, and male suicides in the Great Recession: cross-national analysis of 20 EU countries. *Eur. J Public Health*, <http://dx.doi.org/10.1093/eurpub/cku168>, in press.
- Scourfield, J., Fincham, B., Langer, S., Shiner, M., 2012. Sociological autopsy: an integrated approach to the study of suicide in men. *Soc. Sci. Med.* 74, 466–473.
- Stack, S., Wasserman, I., 2007. Economic strain and suicide risk: a qualitative analysis. *Suicide Life-Threat. Behav.* 37, 103–112.
- StataCorp, 2014. *Stata/MP 13.1 for Windows*, 13.1 ed. StataCorp LP, USA.
- Stuckler, D., Basu, S., Suhrcke, M., Coutts, A., McKee, M., 2009. The public health effect of economic crises and alternative policy responses in Europe: an empirical analysis. *Lancet* 374, 315–323.
- Yip, P.S.F., Yang, K.C.T., Ip, B.Y.T., Law, Y.W., Watson, R., 2007. Financial debt and suicide in Hong Kong SAR1. *J. Appl. Soc. Psychol.* 37, 2788–2799.