**Mental health inequalities and labour market transitions in England during a period of recession and welfare reform 2004 to 2013.**

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**Abstract.**

We do not know what the combined impact has been of recent economic trends and welfare reforms on inequalities in mental illness and the employment prospects of people with mental health problems in the UK.

We use data from the Quarterly Labour Force Survey to investigate trends in mental health and trends in job loss and returns to work of people with mental health problems, by socioeconomic status in England between 2004 and 2013, to explore the potential impact of recent policies and economic trends. Analysis was limited to the working age (18-59 year old) population.

We found that the prevalence of people reporting they had a mental health problem increased rapidly since the onset of the recent recession, particularly between 2010 and 2013 and inequalities have widened since 2010. The increases in reported mental health problems across England broadly mirror the pattern of increases in suicides and antidepressant prescribing during this period. The proportion of people with a mental health problem moving into work each quarter remained relatively unchanged between 2004 and 2013, as did the proportions of high-educated men and women with a mental health problem leaving employment. The proportion of low educated men and women with a mental health problem leaving employment each quarter declined between 2004 and 2013, particularly for women. Overall we observed a large increase in the proportion of the working age population facing the multiple disadvantages of being out of work, having a mental health problem, and having low levels of education.

Economic trends and welfare policies in recent years are associated with an increase in mental illness both in and out or work. Effective approaches are needed to halt the deterioration in working conditions that are potentially adversely affecting mental health and to develop welfare support for people out of work with mental health problems that does not exacerbate inequalities.

**Background**

In recent years recession and subsequent welfare reforms carry the risk of having an adverse impact on mental health in the UK. The government has argued that the potential negative impacts of welfare reforms, are mitigated by improvements in the employment prospects of the groups affected.[1] We do not know, however, what the combined impact has been of these economic trends and welfare reforms on inequalities in mental illness and the employment prospects of people with a mental illness.

We have shown previously that in England the onset of the recession in 2008 and subsequent rises in unemployment were associated with an upturn in suicides (2) and others have reported an increase in other adverse health mental outcomes (3,4). –4] Whilst a deterioration in mental health during recessions has been reported in many studies, these trends have tended to reverse as unemployment levels have fallen following these recessions (ref). This has not, however, been the case in England in recent years. Several indicators of mental health have continued to deteriorate even after the economy began to recover, with suicides reaching a 13 year high in 2013. [4–6] There has been limited investigation of the groups most affected by these trends, particularly those occurring since 2010 and therefore limited understanding of the potential causes of them.

A number of economic trends and policies in the UK could have had an impact on mental health since the recession. Whilst employment began to rise from 2011, other economic factors deteriorated, most notably between 2010 and 2013 the UK experienced the largest continuous fall in real wages for at least 50 years.[7] Much of the increase in employment during that time was also in precarious forms of employment. [8] Changes to welfare benefits were introduced since 2010 as part of the government’s austerity programme designed to reduce the public expenditure. This has included reductions in the adequacy and eligibility of a number of working age welfare benefits, increased conditionality of some benefits and a subsequent rise in the number of people having their benefits stopped because they have failed to comply with increasingly strict requirements.[9,10] Many of these changes have affected people receiving disability benefits more severely, leading to a rise in poverty amongst people with disabilities. [11]

The stated aim of the government’s welfare reform programme since 2010 was to increase work incentives and to support more people into employment.[12] The reduced adequacy of some out-of-work benefits, the introduction of tougher assessments for disability benefits [10,11], the introduction of a new payment-by-results welfare-to-work programme and increased requirements of claimants to engage in work related activities [13] were all expected to increase incentives and support people into employment. There has however only been limited investigation of the impact of these policies on employment, particularly for people with mental health problems, who make up a large proportion of recipients of out-of-work disability benefits. A recent report investigating trends in benefit receipt and employment did not find strong evidence of any return-to-work effects of recent reforms to disability benefits, although the study was limited in scope and statistical power.[14]

Economic trends and welfare policies in the UK in recent years are therefore likely to have influenced trends in both the risk of mental illness and the employment prospects of people with a mental heath problem. There are also reasons to think that some of these effects would be likely to affect some socioeconomic groups more than others. We therefore investigate trends in mental health and trends in job loss and returns to work of people with a mental health problem, by socioeconomic group in England between 2004 and 2013, to explore the potential impact of these policies and economic trends.

**Study Design**

**Data sources and measures**

We analysed trends in inequalities in mental health and the employment consequences of mental il-health using the Quarterly Labour Force survey. The Quarterly Labour Force Survey (QLFS) is the largest representative regular social survey in the UK. It is made up of a rolling panel with each household being interviewed for 5 consecutive quarters enabling transitions between labour market states to be estimated. [15] The data can therefore be used both cross-sectionally and longitudinally. We used the QLFS cross-sectionally to investigate trends in the prevalence of mental health problems and longitudinally to investigate transitions into and out of employment. We included all respondents aged between 18 and 59 from England who were in each of the quarterly surveys between the first quarter of 2004 and the first quarter of 2013. We did not include data from beyond 2013 quarter 1, because the question indicating longstanding illness changed at this point resulting in a discontinuity in the data series. We only included respondents from England as other datasets were not comparable across other parts of the UK. We excluded respondents in full time education and those with missing data on longstanding illness (0.2%) and education (2%), giving sample size of 1,554,837 for the cross sectional analysis. We limited the age range to 18-59, because a large proportion of respondents aged 16 and 17 were in full time education and data on education was not available for women over the age of 59 for all quarters in the QLFS.

The longitudinal analysis was based on a subset of this overall dataset that included a balanced panel of respondents, who were interviewed for all 5 consecutive quarters. We used this balanced panel of respondents because the Office for National Statistics supplies longitudinal weights to adjust these responses for attrition from the panel. This gave a sample size of 685,059 for the longitudinal analysis.

We defined respondents as having a mental health problem if they reported they had longstanding depression, anxiety, a nervous disorder or other mental illness (see Appendix 1 for details of the questions involved). Two educational groups were defined, those who left full time education before the age of 17 (low-educated group) and those who continued in full time education after this point (high-educated group). Employment was defined using the International Labour Organisation (ILO) definition of having undertaken paid employment during the survey reference week. [16].

In additional analysis outlined below we used annual data on trends in suicides and antidepressant prescribing rates per 100,0000 population for each local authority areas in England obtained from the ONS and Health and Social Care Information Centre respectively.

**Statistical Analysis**

The analysis followed three stages. In the first stage we investigated trends in self-reported mental health by educational level using the QLFS. We calculated the prevalence rates of mental health problems in England, by educational group for men and women in and out of work for each quarter between 2004 and 2013. Rates were adjusted for age using the European Standard Population and 95% confidence intervals were calculated.

To investigate whether the trends in self-reported mental illness reflected real changes in population mental health rather than just changes in the propensity of people to report a mental illness, we compared local area trends in self reported mental illness estimated from the QLFS with local trends in suicides, antidepressant prescribing and unemployment. We hypothesised that if trends in self-reported mental illness were a reflection of real trends in adverse mental health, we would expect those areas of the country experiencing the largest increases to also experience a greater increases in suicides and antidepressant prescribing. Similarly we would expect those areas experiencing the greatest increases in unemployment (a known risk factor for mental ill health) to experience the greatest increase in self reported mental health problems. We calculated the prevalence of mental illness reported in the QLFS for each of the 152 local authority areas in England for each year between 2004 and 2013 and compared these to annual rates of suicides, antidepressant prescribing and unemployment for the same areas. Data on antidepressant prescribing were only available at the local authority level from 2010 onwards, whilst for the other measures data were available for all years. We estimated the association between local authority trends in self-reported mental health problems and local authority trends in each of these indicators separately using fixed effects linear regression models. These models included a fixed effect for each local authority, adjusting for any variation between areas and a time trend to adjust for the national trend, so that they estimated the association between trends within local authority areas. (see appendix 2 for further details).

In the second stage we explored trends in the employment consequences of mental health problems by calculating the proportion of people with and without a mental health problem entering or leaving employment between consecutive surveys. Because the sample size is smaller for this longitudinal analysis, we pooled data from the quarterly surveys into three time periods. The period before the economic crisis (2004-2007), the period during the downturn (2008-2010) and the period during which the economy began to recover (2011-2013). We calculated the average percentage of men and women out-of-work, with and without a mental health problem who moved into employment between consecutive quarterly surveys in these three time periods. We then repeated the same calculation for people in employment, calculating the average percentage who left employment between consecutive quarterly surveys in these three time periods. The analysis was conducted separately for high and low education groups. These transition rates were adjusted for age using the European standard population and 95% confidence intervals calculated.

In the third stage, we investigated the combined effect of changes in the pattern of mental health and changes in the employment consequences of having a mental health problem. We calculated the percentage of the working age population in the QLFS who reported being both out of work and having a mental health problem in each quarter and stratified this by sex and educational group.

**Results**

*Trends in mental health*

Figure 1 shows the trend in mental health in England reported in the QLFS over the decade from 2004 to 2013. The prevalence of mental health problems increased from around 2007 and into the recessionary period, most noticeably amongst men out-of-work. These increases were slightly higher amongst men out of work with a higher education, narrowing the gap between low and high-educated groups. Increases in mental health problems since 2010 were greater than those that occurred during the recession and were greatest in low educated groups, widening inequalities. The prevalence of mental health problems amongst people in work remains much lower than amongst those out of work, but has been increasing consistently since 2006.

* Figure 1. The prevalence of self reported mental health problems for men and woman aged 18-59, in and out of work, by educational group 2004-2013. Rates calculated from the quarterly labour force survey and adjusted for age, vertical lines indicate 95% confidence intervals. Y axis for in-work graphs on different scale to out-of-work graphs.



Local authority trends in mental health problems reported in the QLFS were significantly correlated with local authority trends in suicides, antidepressant prescribing and unemployment (see Table 1.). In other words the areas in England that experienced the greatest increase on the prevalence of mental health problems also tended to experience the greatest increases in suicides and the prescribing of antidepressants. The strength of association estimated from the regression models was the equivalent to an additional 2 suicides and the prescription of an additional 19,000 antidepressant items for every additional 10,000 people reporting a mental illness. Those areas that experienced the greatest increase in unemployment experienced the greatest increase in self reported mental health problems. An increase of 100 people experiencing unemployment in an area was associated an additional 2 people reporting a mental illness.

**Table 1. Increase in suicides and antidepressant items prescribed in each local authority area associated with each additional 10,000 people reporting a mental health problems, and increase in reporting of a mental illness associated with each additional 100 people unemployed in each local authority area.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Number | 95% CI | | p |
| Increase in suicides associated with each 10,000 people reporting a mental illness. | 2 | 0.7 | 3.4 | 0.003 |
| Increase in antidepressant items prescribed associated with an increase of 10,000 people reporting a mental illness. | 18,914 | 14,472 | 23355 | <0.001 |
| Additional number of people reporting a mental illness associated with an increase in unemployment of 100 people. | 2 | 0.8 | 3.0 | 0.001 |

*Trend in employment transitions*

Figure 2 shows the trends in the proportion of people with and without a mental health problems entering and leaving employment each quarter. People out of work with a mental illness have a markedly lower chance of entering employment compared to people without a mental health problem; this difference is much greater for men than for women. Apart from a slight increase for higher educated men, in the period after the recession, there was little change over this time period in the rate that people with a mental health problem entered employment. Whilst in the 2011-2013 period following the recession there was an increase in low educated men and women *without* a mental health problem entering employment, there was no similar increase for people with a mental health problem.

People with a mental health problem were also much more likely to leave employment than people without a mental health problem. The rate at which high educated men and women with a mental health problem left employment remained relatively stabled over this period. However amongst men and women with a mental illness and a low education the chances that they left employment declined over this period particularly for women.

* Figure 2. The proportion of people out-of-work entering employment (panel 1) and the proportion of people in work leaving employment (panel 2) each quarter, by mental health status, sex and educational group. Quarterly transition rates are pooled for three time periods 2004-2007, 2008-2010 and 2011-2013. Rates are based on the 18-59 year old population and calculated from the 5 quarter QLFS and adjusted for age, vertical lines indicate 95% confidence intervals.

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*Trends in the proportion of the population out of work with a mental illness*

The proportion of the working age population who were both out-of-work and had a mental health problem increased by around 1 percentage point for men and women between 2004 and 2013. This proportion was fairly stable up to 2007 with just under 3% of men and 4 % of women age 18-59 out of work with a mental health problem, but increased rapidly from that point. This increase was almost entirely amongst men and women with a low level of education.

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**Discussion**

We found that the prevalence of people reporting they had a mental health problem increased rapidly since the onset of the recent recession, particularly between 2010 and 2013 and inequalities between high and low educated groups (?) widened since 2010 particularly for people out of work. The increases in reported mental health problems across England broadly mirror the pattern of increases in suicides and antidepressant prescribing. The proportion of people with a mental health problem moving into work each quarter remained relatively unchanged between 2004 and 2013, as did the proportions of high-educated men and women with a mental health problem of leaving employment. The proportion of low educated men and women with a mental health problem leaving employment each quarter declined between 2004 and 2013, particularly for women. The overall result of all of these trends has been a large increase in the proportion of the working age population out of work with a mental health problem, predominantly people with low levels of education.

As well as being influenced by underlying trends in mental health, trends in self-reported mental health will be sensitive to changes in access to diagnosis and treatment and the degree of stigma associated with reporting a mental health problem. A key issue for interpretation of the findings of this study is therefore whether the large increase in people reporting a mental health problem in the QLFS reflects a real increase in mental ill-health, or is a result of an increase in reporting behaviour. From our analysis, there are reasons to think that there has been a real increase in the prevalence of mental health problems, not just in willingness to report them. Firstly, the trends prior to the recession were relatively stable before increasing around the time of the recession. There is no reason to think that the recession coincided with an increase in access to diagnosis and treatment or a decline in stigma. Secondly, other measures of mental health also started to deteriorate at around the same time and have followed a similar trajectory, including an increase in suicides and antidepressant prescribing (see chart in appendix 3) Thirdly, we found that increases in self-reported mental health problems during the recession were greatest in those areas which experienced the greatest increase in unemployment and that local authority trends in reported mental health problems were associated with local authority trends in suicides and antidepressant prescribing.

The increase in mental ill health associated with the rise in unemployment during the recession was expected as the phenomenon has been documented extensively[3,5,17]. Our finding that inequalities in mental health narrowed slightly during the recession is also consistent with other evidence from the UK [3,18]. However the large increase in mental health problems that we observed since 2010 and the marked widening of inequalities over that time has not previously been documented. There are several potential causes of these more recent trends. Whilst employment increased between 2010 and 2013, wages fell dramatically and there was an increase in more precarious forms of work, including part time work, zero hours contracts and self employment.[19,7] Previous research has shown that falls in income and more precarious forms of work are associated with a deterioration in mental health[20,21]. The rise in mental ill-health that we observed amongst those in work could be related to these economic trends. The increase in more precarious forms of employment has disproportionately affected women, which could explain the greater increase in mental ill-health amongst women in work.[19] The fall in wages affected people on higher wages as well as those on lower wages, which may explain why the prevalence of mental health problems increased amongst both high and low educated groups in work.

These economic trends, which particularly affected people in work, are however unlikely to explain all of the large increase in mental ill-health we observed amongst people out of work. Welfare reforms carried out following the recession could provide an explanation for some of these adverse trends among unemployed people. From 2010 the coalition government introduced a number of welfare reforms that particularly targeted people of working age who were out of work. These included increased conditionality of some benefits, below inflation uprating and freezes for some benefits and time limiting some more generous contributory benefits.[9] The government also undertook a major programme to reassess the eligibility of all 1.5 million claimants of disability-related benefits. We have previously shown how increases between 2010 and 2013 in mental health problems, suicides and antidepressant prescribing across the country closely mirrored the pattern of reassessments of disability benefit claimants carried out during this time.[22]

Whilst we found a large increase in people reporting a mental health problem, we also found that having a mental health problem reduced a person’s chances of entering employment by a similar amount across the entire 2004-2013 time period. The government welfare reforms introduced from 2010, were based on the stated assumption that changes to welfare benefits and increased conditionality would enable and encourage more people to move into employment. Many of these policies were specifically targeted at disability benefit claimants, and having a mental health problem is the most common reason that people are in receipt of these benefits. We found, however, that during the period of this study these policies did not appear to have increased the chances that people with a mental health problem would enter employment. As we have shown in previous studies, similar reforms to disability benefits often result in people shifting onto other benefits (e.g unemployment benefits) rather than into employment.[23]

Other international studies of the current and previous recessions have found that people with chronic health problems and disabilities are more likely to lose there jobs in recessions [24] [25,26]. We found that there was no evidence that in England people reporting a mental health problem were more likely to leave employment during the recession than in the period before the recession. In fact, for low educated groups with a mental health problem, we found that their risk of job loss declined between 2005 and 2013 particularly amongst women. The reasons for this decline require further investigation. It should be noted however that it coincides with an increase in people who are in work reporting a mental health problem, which was also greatest in low educated women. These trends may be related to each other. It could be that changes to the working conditions of low educated groups (particularly women) are increasing both the risk of mental health problems whilst also reducing the risk that people with a mental health problem leave work. Much of the rise in employment since the recession, particularly amongst low educated women, has come from part-time jobs, temporary work and self-employment, often at low wages.[8] These forms of employment could both increase risk of mental ill-health whilst simultaneously providing greater flexibility to enable people with a mental health problem to remain technically employed. It is also possible that welfare reforms and the increasing stigmatization associated with welfare benefit receipt have acted as a disincentive to giving up work, even if the job is aggravating mental ill-health.

The result of the increase in levels and inequalities in mental ill-health has been an increase in the proportion of the population experiencing the multiple disadvantage of having a mental health problem, being out of work and having a low education. This should be of particular concern for policy makers. This multi-disadvantaged group is the least likely to enter employment in the future and the most likely to rely on welfare and social protection systems. It is likely that this group will be particularly at risk of social exclusion and other forms of disadvantage such as poverty, homelessness, alcohol and drug related problems.[27] Public services tend to be less effective at supporting people with severe and multiple disadvantage who then end up using crisis services, which are expensive.[27] The UK governments welfare strategy is increasingly targeting services at people with multiple disadvantages.[28] The increase in multiple disadvantage that we observe is clearly debilitating for the people affected, however it will also potentially increase the utilisation of health and social care resources in the future.

We have found that economic trends and welfare policies in recent years are associated with adverse trends in mental health, leading to a large increase in mental health problems, and, since 2010, these increases have been greatest in the most disadvantaged groups, widening inequalities. Effective approaches are needed to tackle the root causes of these inequalities. Focusing increasing resources on people experiencing multiple disadvantages is unlikely to be effective without addressing the inequalities that are generating these high levels of multiple disadvantage.

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**Appendix Web 1. Self reported Mental Illness in the Quarterly Labour Force Survey.**

In the labour force survey respondents are first asked:

Do you have any health problems or disabilities that you expect will last for more than a year? [LNGLIM]

They are then asked:

Do you have... *Code all that apply* [HEAL0…HEAL17]

1  problems or disabilities (including arthritis or rheumatism) connected with your arms or hands?

2  ...legs or feet?

3  ...back or neck?

4  difficulty in seeing (while wearing spectacles or contact  lenses)?

5  difficulty in hearing?

6  a speech impediment?

7  severe disfigurements, skin conditions, allergies?

8  chest or breathing problems, asthma, bronchitis?

9  heart, blood pressure or blood circulation problems?

10  stomach, liver, kidney or digestive problems?

11  Diabetes?

12  depression, bad nerves or anxiety?

13  Epilepsy?

14  severe or specific learning difficulties?

15  mental illness or suffer from phobias, panics or other nervous  disorders?

16  progressive illness not included elsewhere (eg cancer not  included elsewhere, multiple sclerosis, symptomatic HIV,  Parkinson's disease, Muscular Dystrophy)?

17  other health problems or disabilities?

We defined people as having a self-reported mental illness if they replied yes to the first question [LNGLIM] and were coded as 12 or 15 in any of their responses to the second question [HEAL0…HEAL09]. They were coded as not having a self reported mental illness if they did not give a response coded as 12 or 15 but did provide a valid answer to the first question.

**Appendix Web 2. Models investigating association self reported mental illness unemployment, suicides and antidepressant prescribing.**

The results in Table 1 are derived from 3 regression models of the form:

SUICIDEi,t = β1MENTAL,i,t + YEAR + CONS+ μi + ε*i,t*

ANTIDEPi,t = β1MENTAL,i,t + YEAR + CONS+ μi + ε*i,t*

MENTALi,t = β1UNEMP,i,t + YEAR + CONS+ μi + ε*i,t*

Where:

MENTAL,I,t Is the prevalence of self reported mental illness in year t in local authority i

SUICIDE,I,t is the rate of suicides per 100,000 in year t in local authority i

ANTIDEPi,t is the antidepressant prescribing rate per 100,000 in year t in local authority i

UNEMPi,t is the unemployment (JSA) claimant rate in local authority *i* in year t.

YEAR is a trend term for time.

CONS is a constant.

ε*i,t*  is an error term

**Appendix Web 3.** Trend unemployment suicides, antidepressant prescribing and self reported mental illness.



**Appendix Web 4. Trends in employment rates.**

We calculated employment rates for men and women in England with and without a mental illness, by educational group for each quarter between 2005 and 2013. Rates were adjusted for age using the European standard population and 95% confidence intervals calculated. T

Figure 2 shows the trends in employment rates of men and women with and without a mental illness. The employment rate of people with a mental illness relative to those not reporting a mental illness has gradually been improving over this time. This is more noticeable for women and men with a higher education. The employment rate for men with a mental illness and a lower level of education has only improved very slightly.

* Figure 3. The employment rate of men and woman aged 18-59, with and without a mental illness, by educational group 2004-2013. Rates calculated from the quarterly labour force survey and adjusted for age, vertical lines indicate 95% confidence intervals.



Whilst there has been some increase in employment rates for people with a mental illness, this tells us little about the employment prospects of people with a mental illness. Employment rates of people with a mental illness will rise if the incidence of mental illness amongst people in work increases (for example due to deteriorating working conditions) relative to the incidence of mental illness amongst people out of work. Data on employment transitions is a better indication of the employment prospects of people with a mental illness. Given that entrances into employment do not increase, this increase in employment appears to be largely due to increased risk of mental illness amongst those in work and increased retention of low educated groups with a mental illness in employment.