The impacts of job loss and job recovery on self-rated health: testing the mediating role of financial strain and income

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Background: Is re-gaining a job sufficient to reverse the harmful impacts on health of job loss during the Great Recession? We tested whether unemployed persons who found work within 1 year of job loss experienced a full recovery of their health. Additionally, we tested the mediating role of financial strain and household income.

Methods: Linear regression models were used to assess the effects of job loss and recovery on self-rated health using the longitudinal EU-SILC, covering individuals from 27 European countries. We constructed a baseline of employed persons (n = 70,611) in year 2007. We evaluated income and financial strain as potential mediating factors.

Results: Job loss was associated with worse self-rated health in both men (β = 0.12, 95%CI: 0.09–0.15) and women (β = 0.13, 95%CI: 0.10–0.16). Financial strain explains about one-third of the association between job loss and health, but income did not mediate this relation. Women who regained employment within 1 year after job loss were found to be similarly healthy to those who did not lose jobs. In contrast, men whose employment recovered had an enduring health disadvantage compared with those who had not lost jobs (β = 0.11, 95%CI: 0.05–0.16). Unemployment cash benefits mitigated financial strain but were too low to substantially reduce perceived financial strain among men.

Conclusions: Men and women’s health appears to suffer equally from job loss but differs in recovery. For men, employment recovery was insufficient to alleviate financial strain and associated health consequences, whereas in women regaining employment leads to health recovery.

Introduction

Since the onset of the European economic crisis both increasing prevalence of depression and a reversal of the long-term decline in suicides have been reported, especially where job losses were greatest.¹–⁷ In many EU Member States, unemployment has yet to recover precrisis levels, raising concerns for the health of those still unemployed.

Losing a job is among the most stressful life events.⁸ Job loss frequently results in a significant income reduction, which, for families whose finances are precarious, can constrain their ability to make healthy choices.⁹,¹⁰ Additionally, the financial strain, real or perceived, accompanying job loss is associated with greater psychosocial stress and, resultantly, greater risks of hazardous drinking, tobacco and substance use.¹¹–¹⁴ While this association stems, in part, from those in poor health experiencing greater risk of unemployment, even after accounting for this ‘healthy worker effect’, job losses clearly exacerbate pre-existing health problems.¹⁵,¹⁶ Thus, job loss is both a cause and consequence of ill health.

To some commentators, reducing these health risks is simple: facilitate rapid re-entry into employment.¹⁷,¹⁸ Governments could do so through active labor market policies, which help newly unemployed to find jobs, or, when jobs are scarce, to create work, as in the 1930s. Yet, such an approach has been critiqued for transitioning unemployed persons into low quality jobs which may fail to alleviate underlying financial strain that places people at risk. During recessions, new jobs may be precarious, with lower incomes than jobs held previously. One example is the ‘zero-hours contracts’ now common in the UK.¹⁹ Even if jobs can be found, the short-term experience of unemployment may result in long-term scars linked to loss of social status or initiation of detrimental health behavior during unemployment spells.²⁰

To evaluate resilience of health to job loss and financial strain during the initial years of the economic recession, 2007–2009, we use longitudinal data from the EU Survey on Income and Living Conditions (EU SILC) covering 70,611 individuals in 27 European countries. We tested the hypothesis that a rapid rebound into jobs and greater cash benefits to buffer income losses would mitigate the health consequences of job loss.

Methods

Data and sample selection

We analysed the longitudinal component of the EU-SILC. This includes data on individuals from all 28 countries of the European Union, plus Norway and Iceland. Not all participated in all longitudinal survey waves, so we have information on 27 countries. Information on individual net unemployment benefits was unavailable for 11 countries, leaving an analytic sample of 19 countries.

We used the 2009 longitudinal dataset, which spans 2007, a precrisis base year, through to 2008 and 2009, when unemployment rose sharply. The longitudinal EU-SILC data employed a rotational design, whereby respondents were followed for four consecutive years, with 25% annual replacement, so that only one-quarter of the sample would remain in the fourth year of follow-up (more information about the sampling design can be found in EU SILC documentation online²¹ and in a recent review of its use in health research²²). Thus, to maximize sample size, we focused on 2007–2009 and restricted inclusion of respondents to those aged between 18 and 65 in the 2007, so as to avoid inclusion of minors and a
selective group that remains employed after the modal retirement age in Europe. We also used a sample that was employed at baseline, in the year 2007, and selected respondents who were in the labor force in both 2008 and 2009, adopting the International Labour Organization’s definition of the labor force.\textsuperscript{23} These selections yielded a final sample of $n = 70611$.

**Exposure and outcome variables**

To ascertain employment status in the base year, we used respondents’ self-assessed main activity status. As specified in more detail in the online EU SILC documentation (p. 280), this measurement differs slightly from the ILO definition of employment.\textsuperscript{24} We coded as employed those working full-time or part-time. Respondents who were school pupils, students, in further training or unpaid work experience, retired on grounds of age or permanently disabled and/or unfit to work, in compulsory military or community service, fulﬁlling domestic tasks and care responsibilities, or were otherwise inactive were excluded from the sample. Respondents not working (either full-time or part-time, and either as an employee or being self-employed) or unemployed were also excluded. Job loss was then coded as dummy variable with 1 denoting that respondents were employed at baseline in 2007 but had become unemployed by 2009, and otherwise 0. Additionally we created a ‘rebound’ variable, with 1 signifying those people who lost their job between 2007 and 2008, but regained employment between 2008 and 2009.

We measured health status using the standard five-point self-rated health measure. Respondents were asked how their health is in general, with five options: very good, good, fair, bad, and very bad, scaled from 1 to 5. Self-rated general health is an established measure of people’s physical and mental health status, a strong and valid predictor of morbidity and mortality,\textsuperscript{24,25} and has been used extensively in social epidemiology.\textsuperscript{26}

**Confounders**

To take account of health selection into unemployment, we control for three measures of respondents’ health in 2007: poor general health in 2007, using the same self-assessment scale as for our outcome variable; whether respondents reported suffering from any chronic (long-standing) illness or condition (no = 0, yes = 1); and if respondents were limited in their usual activities during the last 6 months because of health problems (yes, strongly limited; yes, limited; and no), coded as a set of dummy variables.

**Mediating role of financial strain**

We assessed financial strain using a survey question asking people to what extent they experience difficulty making ends meet (i.e., ‘thinking of your household’s total income, is your household able to make ends meet, namely, to pay for its usual necessary expenses?’), scaled from 1 to 6 (very easily to with great difficulty). Household income was measured by people’s self-reported total disposable yearly household income. In those countries outside the eurozone, incomes were converted to euros, adjusted for inflation using the country-specific consumer price index, and divided by 1000 to facilitate interpretation. Finally we included individually received net unemployment benefits for the 19 countries in which these data were available.

**Statistical models**

We performed multilevel analyses to account for clustering of individuals in countries. Failing to account for the nested structure of the data can underestimate standard errors of variables at the national level.\textsuperscript{27} In a first step, we evaluated the effect of job loss on poor health, correcting for potential confounding factors, as follows:

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\text{Poor health}_{ij,2008} = \beta_0 + \beta_1 \text{ job loss}_{ij,2007-2008} + \beta_2 \text{ poor health}_{ij,2007} + \beta_3 \text{ chronic illness}_{ij,2007} + \beta_4 \text{ health limitations}_{ij,2007} + \beta_i + \epsilon_{ij}.
\]

Here $i$ is the individual and $j$ is the country. DEM is a vector of sociodemographic characteristics, including age, age-squared, whether the person was never married, widowed, separated or divorced, and a categorical variable for educational attainment. All control variables at the individual level were measured in 2007. As a second step, we tested the mediating role of income and financial strain by adding income and financial strain separately to the models used in our first step. Any substantial diminution of the effect of job loss on health indicates that the impact of job loss on self-rated health is partly mediated by income and financial strain. Table 1 shows unadjusted descriptive statistics for all variables, for the total sample as well as for men and women separately. All analyses were performed using the xtmixed command in STATA v12.1. Standard errors were adjusted for clustering at the country level to reflect non-independence of sampling.\textsuperscript{27}

**Results**

**Effects of job loss on financial strain and self-rated health**

Table 1 shows that about 5% of survey respondents lost their jobs between 2007 and 2009. Of the total sample, 1% regained employment after job loss between 2007 and 2008, 1% did not regain employment and 4% lost employment between 2008 and 2009. We first tested the impact of job loss on self-rated health and the role of income and financial strain, before evaluating whether job recovery and unemployment benefits could help mitigate it.

Table 2 presents multilevel regression models of the effect of job loss on self-rated poor health. Between 2007 and 2009 losing a job was associated with a 0.12 unit increase in poor health (95% CI: 0.11–0.14), after adjusting for baseline health and potential sociodemographic confounding factors that were not plausibly on the causal path linking job loss to worse health. The association was signiﬁcant for both men ($\beta = 0.12$, 95% CI: 0.09–0.15) and women ($\beta = 0.13$, 95% CI: 0.10–0.16).These differences were not statistically distinguishable (test of effect heterogeneity: $\chi^2 = 0.17, P = 0.68$).

**Testing the mediating role of financial strain and income**

Supplementary Table A1 examines the extent to which perceived financial strain mediates observed harmful associations of job loss with poor general health. As shown in the table, greater difﬁculty to make ends meet in the follow-up year was associated with poorer health ($\beta = 0.06$, 95% CI: 0.05–0.06). After including financial strain in the follow-up year, the effect size of job loss on poor health among men was attenuated to $\beta = 0.08$ (95% CI: 0.03–0.11) and similarly among women to $\beta = 0.09$ (95% CI: 0.06–0.13). Thus perceived financial strain appeared to mediate about one third of the observed relationship between job loss and poor health. Total disposable household income in the follow-up year was independently associated with poor health, but did not attenuate the relationship between job loss and poor health.

**Testing resilience linked to job recovery**

Having observed the role of financial strain, we then tested two resilience factors which could plausibly ameliorate it. We first asked, to what extent is there worse self-rated health among respondents who regained employment between 2008 and 2009 after losing their job between 2007 and 2008 compared with those who remained in employment throughout?
Figures 1 and 2 show the estimated associations of transitions from employment to unemployment and from unemployment to employment between 2008 and 2009 on poor health in men and women, respectively. A full table including the effects of all control variables on poor health is available in the Supplementary Table A2. Figure 1 shows that men who enter a new job between 2008 and 2009 after losing their job between 2007 and 2008 report poorer health than men who remained employed ($\beta = 0.11$, 95% CI: 0.05–0.16), which is similar to the estimated effect size of losing employment between 2008 and 2009 ($\beta = 0.10$, 95% CI: 0.06–0.13). Men who were unemployed in both 2008 and 2009 are worst off, with the coefficient almost twice as large as for those who regained employment ($\beta = 0.19$, 95% CI: 0.14–0.24). However, among women who re-gained jobs, health appeared to recover, so that there was no significant difference between self-rated health among those losing and regaining employment and those who had maintained jobs throughout the recessionary period ($\beta = 0.02$, 95% CI: –0.03 to 0.07).

Consistent with the prior analysis, job recovery appeared to attenuated financial strain, particularly in men. As shown in Supplementary Table A3, men who did not regain unemployment experienced a decrease in income between 2007 and 2009, but incomes increased slightly over the same period for both men who regained employment and men who were continuously employed. Among women, however, household incomes changed only modestly between 2007 and 2009, regardless of whether they regained employment after job loss or not. Similarly, both men and women who lost jobs experienced a rise in reported difficulties to make ends meet, even if they regained employment after job loss. Supplementary Table A4 show that about a third of the impact of job recovery on health could be explained by financial strain, whereas income did not account for this relationship (see also Supplementary Figures A1 and A2 disaggregated by sex). These patterns were not attributable to varying inflation levels between Eurozone countries and non-Eurozone countries (Supplementary Table A5).

### Testing resilience linked to unemployment cash benefits

Next we tested another potential resilience factor: whether the magnitude of unemployment benefits reduced financial strain...
persons who lost jobs? As shown in Supplementary Table A6, among men, the magnitude of unemployment benefits reduced the difference in financial strain between those who lost their job and those who remained employed between 2007 and 2009 ($\beta = 0.02$, 95% CI: $-0.01$ to $-0.04$). Based on this association, unemployment benefits would have to equal €33500 per year (i.e., $0.67 \div 0.02 = 33500$) to mitigate the negative effect of job loss on financial strain. However, among women, the magnitude of unemployment benefits had no significant effect on financial strain ($\beta = 0.02$, 95% CI: $0.01$ to $0.04$). 28

Discussion

Our results demonstrate that job loss increases the risk of self-rated poor health after a follow-up period of 2 years, even after controlling for initial health status. Perceived financial strain appears to mediate about one-third of the relationship between job loss and self-rated poor health. Importantly, we observed that job recovery helped to mitigate the adverse health effects, but that, at current levels of income recovery, was insufficient to neutralize the health risks of job loss in men. This was partly because job recovery failed to alleviate financial strain. In contrast, women’s job recovery tended to correspond to reducing perceived difficulties making ends meet. Although financial strain is a key mediating factor, unemployment benefits, at present levels, appear insufficient to neutralize the association of job loss with poor health. 29

As with all statistical analyses, our study has several strengths and limitations. One advance of our study is the use of longitudinal, multi-level data testing labor market transitions. In contrast with some prior cross-national comparative studies on unemployment and health in Europe, 3,28 we have been able to take into account health selection into unemployment by using longitudinal rather
than cross-sectional data. However, the study relies upon self-reported measurements of health, financial strain, and employment status, which may not be directly comparable across cultures. Thus our analysis was performed based on within-country differences over time, overcoming this potential bias. Nonetheless, there is a need to develop more reliable measures of health status that permit direct cross-national comparisons. Second, due to the SILC’s rotational design, we were only able to follow respondents for three years. It is possible that job loss exerts a long-term impact. Additionally, future research may consider the duration of unemployment because job recovery after a short spell of unemployment may have a different impact on health than after a longer period without a job. Third, due to the social and psychological consequences of job loss, sample attrition may be higher among people who lost their jobs than among people who remained employed. For example, if people moved to other municipalities or moved out of the household due to divorce or separation after losing their jobs, there is a higher risk that there is no information available for these respondents for the follow-up year. As a result, our estimates of the effect of job loss on health are likely to be conservative.

Taken together, this study reveals that job loss during the economic recession has a serious effect on health in Europe, and that financial strain is partly responsible for this detrimental impact. More importantly, a return to employment after job loss offers solace only to a limited extent. Among men we are seeing only a partial rebound in terms of health after regaining employment, which may be partly due to transitioning to a more precarious financial state after job loss that is not fully compensated by the wages provided by the newly entered job. Furthermore, the experience of job loss may have a persisting effect on confidence. In addition, individuals may accumulate debt during the period of unemployment, with consequences for their subsequent self-perceived financial status in employment. As such, new employment after job loss fails to fully mitigate the health risks of job loss. This suggests that there is a scarring effect on health of short unemployment spells among men. On the other hand, women were better able to rebound, with no discernible difference between those who did not lose jobs and those who lost jobs but regained them rapidly. For women, it appears that the effect of job loss on health is more transitory, and can be countered more easily by a swift return to employment. As such, women appear to be more resilient to the impact that job loss during the economic recession has had on health. It will be important to examine further whether the differential impact of job recovery on health for men and women, like job loss, can be explained by differences in role configurations of men and women.

Our results have implications for policy and future research. First, for women, regaining employment after job loss proves to be of critical importance to limit the detrimental impact of job loss during economic recessions on self-rated health. For men, promoting quick entry into new employment after job loss appears to help but not fully avert these harms. Our results demonstrate that once men have lost their jobs, their health continues to suffer, even upon regaining employment within 1 year. This evidence of scarring effects calls into questions arguments that rising unemployment generates only temporary damage to those involved, offset by full rebound when the economic situation improves. Second, alleviating financial strain is likely to be a critical target for policies aiming to limit the health impact of job loss. However, our results suggest that unemployment benefits are currently insufficient to reduce financial strain after job loss, and further that not just material but perceived strain may be most relevant. Higher unemployment benefits may be a good strategy to reduce the harmful impact of job loss on health, especially now that evidence suggests that greater generosity does not increase unemployment. This indicates that there is likely to be a long tail of human suffering associated with the Great Recession and slow job recovery in Europe.

**Supplementary data**

Supplementary data are available at EURPUB online.

**Conflicts of interest:** None declared.

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**Key points**
- Job loss increases the risk of reporting poor health after a follow-up period of 2 years, even after controlling for initial health status.
- Perceived financial strain appeared to mediate about one-third of the relationship between job loss and self-rated poor health.
- Helping men into new employment quickly after job loss is not enough to prevent the harmful effect of job loss during recessions on health, partly because they continue to experience increased financial strain.
- Women are more resilient to the impact of job loss during recessions, since their health fully recovers after finding new employment.