



Short report

Inequality and the association between involuntary job loss and depressive symptoms

Edward R. Berchick^{a,*}, William T. Gallo^b, Vida Maralani^c, Stanislav V. Kasl^c^a Princeton University, Princeton, NJ 08544, USA^b City University of New York, New York, NY, USA^c Yale University, New Haven, CT, USA

ARTICLE INFO

Article history:

Available online 6 August 2012

Keywords:

USA
Socioeconomic status (SES)
Job loss
Health inequalities
Unemployment
Depressive symptoms

ABSTRACT

Although socioeconomic status (SES) has been shown to be associated with susceptibility to involuntary job loss as well as with health, the ways in which individual SES indicators may moderate the job loss–health association remain underexplored. Using data from the Americans' Changing Lives study, we estimate the ways in which the association between job loss and depressive symptoms depends on five aspects of SES: education, income, occupational prestige, wealth, and homeownership. Our findings indicate that higher SES prior to job loss is not uniformly associated with fewer depressive symptoms. Higher education and lower prestige appear to buffer the health impacts of job loss, while financial indicators do not. These results have a number of implications for understanding the multidimensional role that social inequality plays in shaping the health effects of job loss.

© 2012 Elsevier Ltd. All rights reserved.

Introduction

Involuntary job loss is an important and widespread feature of economic downturns. Losing one's job is not only a financial burden, but it has enduring health consequences as well. People who lose their jobs have higher depressive symptoms and greater risk of chronic conditions than those with steady work (e.g., Catalano & Dooley, 1983; Gallo, Bradley, Siegel, & Kasl, 2000). We examine whether people can draw on their other social statuses to buffer against the health consequences of involuntary job loss. Most of the existing literature describes the overall social patterning of job loss itself, finding that individuals of lower social standing are more likely to experience involuntary job displacement than their more advantaged peers (Burgard, Brand, & House, 2007; Kasl & Jones, 2000). While some literature finds heterogeneity by socioeconomic status (SES) in the relationship between unemployment and depression (e.g. Artazcoz, Benach, Borrell, & Cortes, 2004), little research examines job loss itself. We assess whether depressive symptoms following involuntary displacement differ according to several measures of SES. That is, we ask whether individuals can draw on statuses from domains such as education, income, occupational prestige or homeownership to ease the health consequences of involuntary job loss.

Stress as a pathway

Work related to the association between involuntary job loss and mental health outcomes is situated in a wider literature that examines the connection between stress (and stressful events) and depression. Overall, these studies offer evidence for a strong, positive association between stress and depression; persons who experience stress, on average, present higher depressive symptoms. (See Hammen, 2005 and Kessler, 1997 for an overview.)

This literature also posits differential vulnerabilities to stress. For example, "social stratification" (House & Mortimer, 1990) and "social status" (Aneshensel, 1992; Kessler & Cleary, 1980) may pattern individuals' responses to stressors. Others also find that SES and stress are inversely related (Lynch, Kaplan, & Salonen, 1997; McLeod & Kessler, 1990) for largely unknown reasons, although one hypothesis is the co-presence of numerous stressors throughout the life course (Lynch & Kaplan, 2000). Young and Schieman (2012), for example, find evidence for a stress amplification process.

Specifically, job loss may initiate interpersonal and familial conflict (Broman, Hamilton, & Hoffman, 2001; Pearlin, Schieman, Fazio, & Meersman, 2005), provoke a perceived loss of control (Price, Choi, & Vinokur, 2002), and necessitate drawing on financial savings (Pearlin, Menaghan, Lieberman, & Mullan, 1981). The first two consequences fall into the domain of "self-concept" (Turner, 1995); displaced workers' socially approved roles are eliminated and their social worth is depreciated (Schlozman & Verba, 1979). Differences in social standing, however, may shape this impact.

* Corresponding author.

E-mail address: berchick@princeton.edu (E.R. Berchick).

Persons may draw on accumulated social resources (e.g., social ties, social standing, and sense of self-worth) to protect themselves or, alternatively, may lose more of that capital through a demoted status. Similarly, they may draw on financial resources to cushion economic effects.

Beyond the conceptual support for this project, there is also some, albeit incomplete, empirical evidence that indicates that inequality may affect the job loss-health association. Burgard et al. (2007) find that education and occupational standing are significantly associated with post-job loss depressive symptoms, while income is not. This finding suggests that different components of SES may have different effects on the health consequences of job loss, but the authors do not explore whether the job loss-health association depends on them.

Turner (1995) examines this interaction more directly. He investigates how the relationship between post-displacement employment status and depression depends on education, finding a positive effect only for those still unemployed at follow-up. He argues that unemployment's financial strain affects persons with lower education, while a perceived loss in standing and control affects persons with higher education. Despite its numerous strengths, Turner's account only includes one measure of SES and examines the moderating effect on re-employment status, not job loss itself. Additionally, while he believes that counterbalancing forces may affect the estimates of differential vulnerability, as SES may operate in both directions due to both psychological and material consequences of job loss, he is unable to test this directly.

Together, these accounts suggest that individuals' social standing may affect the emotional and physiological effects of job loss via differential vulnerability to acute stressors. Social standing, however, is a multidimensional construct; each of the four common indicators of SES reflects a different aspect of overall social position (Braveman et al., 2005; Liberatos, Link, & Kelsey, 1988). Some components of individuals' profiles may operate in one direction (e.g., act as buffers and resources), while others may act in an opposite direction or not at all.

Methods

Our data are taken from the Americans' Changing Lives (ACL) study (House, 2008). The ACL is a longitudinal cohort composed of a multistage stratified area probability sample of 3617 adults aged 25 and older. Four waves of data have been collected: 1986, 1989, 1994, and 2001/2002. Additional information about the design and implementation of the ACL is described elsewhere (House, Lantz, & Herd, 2005). Although weights are available, we do not use them, as our sample differs from the original ACL sample with respect to sociodemographic characteristics due to our exclusion criteria and person-spell approach (described below). However, our results are robust to weighting. No ethics review was necessary, since the project used de-identified, secondary data available from the Inter-University Consortium for Political and Social Research (www.icpsr.umich.edu).

Following the analytic strategies of other job loss studies, we use a person-spell approach to data structuring. That is, we examine waves in pairs (1986–1989, 1989–1994, 1994–2002), with up to three spells per participant (mean = 1.4). We exclude respondents who did not complete at least two consecutive interviews ($n = 536$) or did not report employment at the start of each person-spell ($n = 793$). In order to reduce the threat from health selection, we exclude respondents ($n = 1285$) who report a cardiovascular event, stroke, or diagnosis of hypertension at the start of the person-spell or before. We then drop cases missing data on any of the primary variables or covariates. Such restrictions leave a sample of 2150 person-spells for 1510 individuals. The majority of person-spells

were from Wave 1 to Wave 2 (64.49%) and from Wave 2 to Wave 3 (32.05%).

The characteristics of this sample are presented in Table 1. As expected, those who involuntarily lost their jobs (17.28% of the sample) differed from those who did not: displaced workers were younger, less likely to be married (although if they were, their spouses were more likely to be working) and were less wealthy. Additionally, job losers reported more depressive symptoms in the next wave than those who did not experience job loss.

Measures

Depressive symptoms

We examine respondents' depressive symptoms with an 11-item subset of the 20-item Center for Epidemiological Studies Depression Scale (CES-D). Scores are standardized to the 1986 ACL score distribution (sample range: -1.16 to 4.47). To account for baseline differences, we control for previous wave depressive symptoms.

Socioeconomic status

As individuals can draw on different aspects of their status, we examine individual SES indicators separately rather than through a composite index. Educational attainment is measured by years of schooling completed. Occupational status is measured by Siegel occupational prestige scores (Siegel, 1971), which are constructed using the 1970 Census occupation and industry codes. We divide scores by 100 to scale coefficients. Income is measured by logged annual household earnings. Two variables are used to describe wealth: dichotomous measures of financial assets ($< \$50,000$, $\geq \$50,000$) and homeownership. Interaction terms involving the continuous measures are also centered.

Involuntary job loss

The primary exposure of interest is involuntary job loss, which is retrospectively reported at waves 2, 3, and 4. At each wave, participants are asked, "Have you involuntarily lost a job for reasons other than retirement since [last interview]?" For our analyses, the involuntary job loss exposure variable is dichotomized.

Table 1

Demographic characteristics and percentages/means by experience of involuntary job loss, ACL data ($N = 1510$).

	Involuntary job loss ^a		p
	No ($N = 1249$)	Yes ($N = 261$)	
Age (years) ^b	45.72 (13.91)	37.74 (10.26)	<0.001
Male (%)	45.56	49.43	0.254
White (%)	64.45	60.15	0.189
Education (years)	12.78 (2.87)	12.87 (2.69)	0.624
Married (%) ^b	61.81	54.41	0.026
Marital duration (years) ^b	21.88 (14.13)	15.58 (10.81)	<0.001
Spouse education (years) ^b	12.56 (3.03)	12.72 (2.48)	0.512
Spouse employed (%) ^b	67.06	76.29	0.004
Income (dollars) ^b	31,551 (23,559)	29,119 (21,839)	0.125
Income (logged) ^b	10.053 (0.024)	9.965 (0.054)	0.133
Occupation prestige (Siegel score)	406.5 (144.8)	402.4 (143.2)	0.638
Assets ($\geq \$50,000$) ^b	23.54	10.34	<0.001
Own home (%) ^b	68.45	56.32	<0.001
Any dependents (%) ^c	50.92	61.30	0.002
Other stressful life event (%) ^d	61.97	64.75	0.399
Depressive symptoms ^e	-0.34 (0.82)	-0.16 (0.99)	0.017

^a Involuntary job loss reported at Wave 2, 3, or 4.

^b At Wave 1 (1986).

^c At Wave 2 (1989).

^d Other stressful events include death of a spouse, parent, child or friend, divorce, robbery, or attack.

^e Standardized 11-item CES-D score, interview after reported job loss.

To isolate truly involuntary job losses from health-related losses, we exclude cases where job loss follows a self-reported “serious” or “life-threatening” health event. If the health event occurred before or during the month/year (for Wave 4, year, since month is not available) of job loss, we do not consider it as an involuntary displacement.

Analytic strategies

To estimate the overall relationship between job loss, SES, and health outcomes, we use generalized estimating equations with an exchangeable working correlation structure to account for intra-subject correlation and provide estimates of population-averaged effects. We estimate two regression specifications. The first model describes the overall relationship between job loss, SES, and depressive symptoms. In Model 2, we add interaction terms between involuntary job loss and each of the SES components in order to estimate whether these might moderate the job loss–health relationship. In both models, we control for the time between waves; due to uneven time intervals, depression measurements are three to eight years apart. To address potential confounding from sociodemographic differences and to isolate the individual-level components of SES, our models also control for age, race/ethnicity, sex, marital status, years married, spouse employment status, spouse educational attainment, and number of dependents.

Results

Table 2 presents results from both models. Model 1 examines the overall relationship between depression, job loss, and SES status. Job loss was positively associated with follow-up depressive symptoms. Of the SES indicators, only educational attainment and

Table 2
Modifying effects of SES on the relationship between job loss and depressive symptoms, ACL data.

	Depressive symptoms (standardized 11-item CES-D score)	
	Model 1	Model 2
Intercept	1.273 (0.299)**	1.289 (0.311)**
Job loss (JL)	0.144 (0.066)*	0.040 (0.118)
Education	−0.017 (0.008)*	−0.012 (0.009)
Education × JL	—	−0.074 (0.029)*
Occupational prestige ^a	−0.014 (0.015)	−0.024 (0.016)
Occupational prestige × JL	—	0.143 (0.062)*
Income (logged)	−0.077 (0.030)*	−0.079 (0.032)*
Income × JL	—	−0.021 (0.103)
Assets ≥ \$50,000	−0.033 (0.048)	−0.035 (0.049)
Assets × JL	—	0.231 (0.214)
Own home	0.013 (0.043)	−0.010 (0.045)
Own home × JL	—	0.246 (0.146)
Age	−0.003 (0.002)*	−0.004 (0.002)*
Male	0.009 (0.036)	0.009 (0.035)
White	−0.077 (0.038)*	−0.072 (0.038)
Married	−0.326 (0.126)**	−0.325 (0.126)**
Marital duration	0.003 (0.002)	0.003 (0.002)
Spouse education	0.013 (0.008)	0.013 (0.008)
Spouse employed	−0.063 (0.053)	−0.065 (0.053)
Has dependents	0.066 (0.042)	0.060 (0.041)
Other stressful life event ^b	0.086 (0.037)*	0.087 (0.037)*
Previous wave CES-D	0.448 (0.018)**	0.449 (0.018)**
Person spell length	−0.040 (0.021)	−0.041 (0.020)*
Currently unemployed	—	—
Person spell observations	2150	2150
Individuals	1510	1510

Model 1: Full additive model; Model 2: Model including interaction terms. * $p < .05$, ** $p < .01$.

^a Measure of occupational status. See Siegel (1971).

^b Death of a spouse, parent, child or friend; divorce; robbery; or attack.

income were significantly associated with a lower depression score, indicating fewer depressive symptoms for those who were more advantaged with respect to these characteristics.

In Model 2, we allow the association of job loss and depression to differ by SES status. Here we found that above-average occupational prestige significantly heightened vulnerability to depressive symptoms post-involuntary job loss, but increased education (centered at 12 years) had the opposite moderating effect. Every year of schooling after high school was associated with about eight percent of a standard deviation decrease in depressive symptoms, while a one standard deviation increase in occupational prestige was associated with a fifth of a standard deviation increase in symptoms. No other interaction terms were significant in this model.

We also ran a third model (not shown) in which we controlled for follow-up unemployment status, as continued unemployment may affect respondents' depressive symptoms (Mandal & Roe, 2008). Echoing others' findings, we estimated that current unemployment status is significantly associated with depressive symptoms (coefficient: 0.333, S.E.: 0.108). However, the inclusion of this term did not affect the magnitude or significance of our SES interactions.

Discussion

We build upon the job loss and health inequality literatures and explore another way in which SES affects the health impact of job loss. Our results suggest that people's status profiles can moderate the psychological health consequences of involuntary job loss, although only in certain respects and in varying directions. On average, persons with higher levels of education experienced fewer depressive symptoms, whereas those with higher occupation prestige faced greater symptoms. Other measured indicators—pre-layoff income, accumulated wealth, and homeownership—were not found to have a moderating effect.

These findings are consonant with the hypothesis that job loss affects health in part via perceived loss of control (Price et al., 2002), with social support (Aneshensel & Stone, 1982) and increased sense of control (Aneshensel, 1992) buffering the effects of stressors. Higher educated persons tend to have more social support and report more control over their lives than those with less education (Berkman, 1995; Ross & Wu, 1995), and perceive better future job prospects. Furthermore, neither this protective effect of education nor its associated status is disrupted by the event; job loss cannot reduce a person's educational attainment.

Job loss, however, disrupts the status associated with a position in a high-prestige occupation. Indeed, those who hold jobs in high-status occupations may have “farther to fall” in the face of involuntary job loss, resulting in a greater loss of power and prestige than those with lower status jobs. This may lead to potential status inconsistency: if there is no loss of internal self worth, this discrepancy may cause greater depressive symptoms. These individuals face what some have labeled “reverse double jeopardy” (Strully, 2009).

Measured indicators of SES correspond to a Weberian account of social differentiation (Liberatos et al., 1988). The two significant indicators relate to “status” or to access to life chances that stems from one's position within society, as well as prestige within one's community. The components of SES that did not moderate the association between job loss and depression (income, wealth, and homeownership) relate to “class,” i.e. economic differentiation and control over financial resources. Income is the measure of SES most directly related to a person's access to material conditions (Adler & Newman, 2005; Lynch & Kaplan, 2000), and wealth is a measure of accumulated resources that can be used to provide material necessities (Brenner, 1991). In other words, our results highlight the role of nonmaterial pathways over material ones.

Nonetheless, some of our findings may be partially explained by methodological and measurement limitations. First, as job loss is self-reported, it is difficult to distinguish truly involuntary job losses from health-related separations; persons may consider these uncontrollable events as involuntarily leading to their displacement. Although we excluded cases where an acute health shock precedes job loss to be involuntary losses, these selection processes may still affect the results if those with worse health are more likely to experience job loss (McDonough & Amick, 2001). Additionally, SES may pattern health-related selection into job loss. For example, persons in higher prestige jobs may have more flexibility in taking medical leave, or illness may lead to reduced income.

As a result of potential selection, a number of studies (e.g., Hamilton, Broman, Hoffman, & Renner, 1990) examine factory closures, as they are unrelated to individual employees' health. While factory-closings are exogenous to the health of displaced worker, the circumstances of factory closings differ from those surrounding other types of termination. More importantly, perception of job insecurity affects health (Burgard, Brand, & House, 2009), and may confound the job loss-negative health relationship. As a result, we do not use such a design in our analysis, but recognize our inability to make causal claims.

Second, some job loss-related depressive symptoms may have dissipated after the event, while symptoms related to unobserved life events may have appeared. Due to the ACL's design, the time between job loss and measured symptoms is anywhere from days to several years. We cannot account for this variation other than by controlling for time between waves. Similarly, we also cannot be certain that the baseline Siegel score actually corresponds to the job that was lost. Nevertheless, due to serial correlation between jobs in the relatively short term (Hauser & Warren, 1997), our measure serves as a reasonable proxy.

Third, some aspects of SES correspond to the individual (education, occupational prestige) while others are tied up with family status (income, wealth). Household economic resources are often pooled, and individual members can draw on these collective resources. Similarly, one's own status is partly determined by spouse's education and occupation status. Thus, we included such household controls in our models but ambiguities concerning level of SES remain. Furthermore, we did not account for life course effects (e.g., childhood SES), the role of neighborhood, or other such effects by which inequality may shape health. These unmeasured factors may affect the nature of the observed relationship in unobserved ways.

Nonetheless, our project illustrates another feature of the relationship between job loss, SES, and health. Persons have multidimensional social status profiles and they can draw on various facets of this status at the time of job loss and afterward. Understanding this differential vulnerability and its impact on depressive symptoms can inform interventions that target the health consequences of job loss and their accompanying economic burden. We extend work that notes heterogeneous stress responses, additive effects of SES on post-job loss health, and education-reemployment status interactions to offer another piece of evidence that difficult economic times may exacerbate health inequities.

Acknowledgments

We would like to thank Taylor Holubar, Brenna Hassinger, and Maureen Canavan for their helpful comments on earlier drafts.

References

Adler, N. E., & Newman, K. (2005). Socioeconomic disparities in health: pathways and policies. *Health Affairs*, 21, 60–76.

- Aneshensel, C. S. (1992). Social stress: theory and research. *Annual Review of Sociology*, 18, 15–38.
- Aneshensel, C. S., & Stone, J. D. (1982). Stress and depression: a test of the buffering model of social support. *Archives of General Psychiatry*, 39, 1392–1396.
- Artazcoz, L., Benach, J., Borrell, C., & Cortes, I. (2004). Unemployment and mental health: understanding the interactions among gender, family roles, and social class. *American Journal of Public Health*, 94(1), 82–88.
- Berkman, L. F. (1995). The role of social relations in health promotion. *Psychosomatic Medicine*, 57(3), 245–254.
- Braveman, P. A., Cubbin, C., Egerter, S., Chideya, S., Marchi, K. S., Metzler, M., et al. (2005). Socioeconomic status in health research: one size does not fit all. *Journal of the American Medical Association*, 294, 2879–2888.
- Brenner, M. H. (1991). Health, productivity, and the economic environment: dynamic role of socioeconomic status. In G. M. Green & F. Baker (Eds.), *Work, health, and productivity* (pp. 241–255). New York: Oxford University Press.
- Broman, C. L., Hamilton, V. L., & Hoffman, W. S. (2001). *Stress and distress among the unemployed: Hard times and vulnerable people*. New York: Kluwer.
- Burgard, S. A., Brand, J. E., & House, J. S. (2007). Toward a better estimation of the effect of job loss on health. *Journal of Health and Social Behavior*, 48, 369–384.
- Burgard, S. A., Brand, J. E., & House, J. S. (2009). Perceived job insecurity and worker health in the United States. *Social Science & Medicine*, 69(5), 777–785.
- Catalano, R., & Dooley, D. (1983). Health effects of economic instability: a test of economic stress hypothesis. *Journal of Health and Social Behavior*, 24, 46–60.
- Gallo, W. T., Bradley, E. H., Siegel, M., & Kasl, S. V. (2000). Health effects of involuntary job loss among older workers: findings from the health and retirement survey. *Journal of Gerontology: Social Sciences*, 55B, S131–S140.
- Hamilton, V. L., Broman, C. L., Hoffman, W. S., & Renner, D. S. (1990). Hard times and vulnerable people: initial effects of plant closings on autoworkers' mental health. *Journal of Health and Social Behavior*, 31, 123–140.
- Hammen, C. (2005). Stress and depression. *Annual Review of Clinical Psychology*, 1, 293–319.
- Hauser, R. M., & Warren, J. R. (1997). Socioeconomic indexes for occupations: a review, update, and critique. *Sociological Methodology*, 27, 177–298.
- House, J. S. Americans' Changing Lives: Waves I, II, III, and IV, 1986, 1989, 1994, and 2002 [Computer file]. ICPSR04690-v4. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2008-12-11.
- House, J. S., Lantz, P. M., & Herd, P. (2005). Continuity and change in the social stratification of aging and health over the life course: evidence from a nationally representative longitudinal study from 1986 to 2001/2002 (Americans' Changing Lives Study). *Journal of Gerontology: Social Sciences*, 60B, 15–26.
- House, J. S., & Mortimer, J. (1990). Social structure and the individual: emerging themes and new directions. *Social Psychology Quarterly*, 53(2), 71–80.
- Kasl, S. V., & Jones, B. A. (2000). The impact of job loss and retirement on health. In L. F. Berkman & I. Kawachi (Eds.), *Social epidemiology* (pp. 118–137). New York: Oxford University Press.
- Kessler, R. C. (1997). The effects of stressful life events on depression. *Annual Review of Psychology*, 48, 191–214.
- Kessler, R. C., & Cleary, P. D. (1980). Social class and psychological distress. *American Sociological Review*, 45, 463–478.
- Liberatos, P., Link, B. C., & Kelsey, J. L. (1988). The measurement of social class in epidemiology. *Epidemiologic Reviews*, 10, 87–121.
- Lynch, J., & Kaplan, G. (2000). Socioeconomic position. In L. F. Berkman & I. Kawachi (Eds.), *Social epidemiology* (pp. 13–35). Oxford: Oxford University Press.
- Lynch, J. W., Kaplan, G. A., & Salonen, J. T. (1997). Why do poor people behave poorly? Variation in adult health behaviours and psychosocial characteristics by stages of the socioeconomic lifecourse. *Social Science & Medicine*, 44(6), 809–819.
- Mandal, B., & Roe, B. (2008). Job loss, retirement and mental health of older Americans. *Journal of Mental Health Policy and Economics*, 11, 167–176.
- McDonough, P., & Amick, B. C. (2001). The social context of health selection: a longitudinal study of health and employment. *Social Science & Medicine*, 53(1), 135–145.
- McLeod, J. D., & Kessler, R. C. (1990). Socioeconomic status differences in vulnerability to undesirable life events. *Journal of Health and Social Behavior*, 21, 162–172.
- Pearlin, L. I., Menaghan, E. G., Lieberman, M. A., & Mullan, J. T. (1981). The stress process. *Journal of Health and Social Behavior*, 22(3), 337–356.
- Pearlin, L. I., Schieman, S., Fazio, E. M., & Meersman, S. C. (2005). Stress, health, and the lifecourse: some conceptual perspectives. *Journal of Health and Social Behavior*, 46, 205–219.
- Price, R. H., Choi, J. N., & Vinokur, A. D. (2002). Links in the chain of adversity following job loss: how financial strain and loss of personal control lead to depression, impaired functioning, and impaired health. *Journal of Occupational Health Psychology*, 7, 302–312.
- Ross, C. E., & Wu, C. (1995). The links between education and health. *American Sociological Review*, 60, 719–745.
- Schlozman, K. L., & Verba, S. (1979). *Injury to insult: Unemployment, class, and political response*. Cambridge, MA: Harvard University Press.
- Siegel, P. M. (1971). *Prestige in the American occupational structure*. Dissertation. University of Chicago.
- Strully, K. (2009). Racial-ethnic disparities in health and the labor market: losing and leaving jobs. *Social Science & Medicine*, 69, 768–776.
- Turner, R. J. (1995). Economic context and the health effects of unemployment. *Journal of Health and Social Behavior*, 36, 213–229.
- Young, M., & Schieman, S. (2012). When hard times take a toll: the distressing consequences of economic hardship and life events within the family-work interface. *Journal of Health and Social Behavior*, 53, 84–98.