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The scarring effect of unemployment throughout adulthood on psychological distress at age 50: Estimates controlling for early adulthood distress and childhood psychological factors

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ABSTRACT

Unemployment is an established predictor of psychological distress. Despite this robust relationship, the long-term impact of unemployment on human welfare has been examined in relatively few studies. In this investigation we test the association between the life-time duration of unemployment over a 34 year period from 1974 to 2008 and psychological distress at age 50 years in a sample of 6253 British adults who took part in the National Child Development Study (NCDS). In addition to adjusting for demographic characteristics, we account for the role of childhood psychological factors, which have been shown to predict adult occupational and mental health outcomes and may determine the connection between unemployment and distress. We find that intelligence and behavioral/emotional problems at age 11 predict both unemployment and psychological distress later in life. Furthermore, as predicted, the duration of unemployment throughout adulthood was associated with elevated levels of psychological distress at age 50, after adjusting for demographic characteristics including labor force status at age 50. The emotional impact of unemployment was only marginally attenuated by the inclusion of childhood factors and early-life distress levels in the analyses. Thus, unemployment may lead to worsening distress levels that persist over time and which cannot be attributed to childhood or early-life well-being or cognitive functioning early in life. Our analysis further supports the idea of psychological scarring from unemployment and the importance of employment outcomes for adult well-being.

Introduction

The 2007 financial crisis and subsequent deep recession have led to a substantial increase in unemployment levels. At the end of 2007 the unemployment rate in both the UK and the US was 5% (OECD, 2010; U.S. Bureau of Labor Statistics, 2011). Joblessness has since grown to over 8% in the UK and the US, with young adults bearing the greatest part of this burden (Bell & Blanchflower, 2011). Similar effects have been seen across the developed world with many countries experiencing 2–3 fold increases in unemployment. Emerging evidence suggests that the recent rise in unemployment may have had adverse psychological effects such as an increase in alcoholism and suicide (Stuckler, Basu, Suhrcke, Coutts, & McKee, 2009, 2011). However, the ways in which the current economic downturn may affect well-being in the longer term are unclear. A particularly worrying possibility is that unemployment could lead to permanent psychological scars in the form of reduced well-being later in life (Clark, Georgellis, & Sanfey, 2001). The current study aims to identify whether unemployment may have a long-run effect on later life psychological distress that is distinct from influential confounding variables.

In prior studies, investigators have utilized a variety of research designs to test the immediate impact of unemployment on well-being. Cross-sectional studies have shown that a strong association exists between unemployment and psychological well-being (Wanberg, 2012). However, cross-sectional studies can rarely rule out the possibility that people with worse mental health are selected into unemployment. To account for the role of selection, longitudinal studies have examined the short term effects of transitions from employment to unemployment and unemployment to employment (McKee-Ryan, Song, Wanberg, & Kinicki, 2005). Such longitudinal studies, while they have the potential to demonstrate a causal link, are not necessarily sensitive or timely enough to

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distinguish fluctuations in distress brought on by anticipation of unemployment or employment rather than unemployment and employment in their own right. For example, a recent meta-analytic review of longitudinal studies showed that those who lost their jobs had worse mental health than other employees prior to unemployment (Paul & Moser, 2009). Due to the restricted duration of the studies reviewed it is unclear if the low levels of well-being observed prior to unemployment can be attributed to anticipation of unemployment or selection into unemployment.

A small set of longitudinal studies have attempted to account for participants' well-being several years prior to unemployment in order to establish a more accurate account of the immediate psychological effect of leaving the labor force (Goldsmith, Veum, & Darity, 1996; Montgomery, Cook, Bartley, & Wadsworth, 1999; Winkelmann & Winkelmann, 1998). For instance, Montgomery et al. (1999) use the British National Child Development Study (NCDS) to show that the onset of depressive symptoms requiring medical attention was preceded by unemployment in the previous year. Importantly, this study adjusted for participants' pre-existing vulnerability to poor mental health in adulthood and childhood. This and other carefully designed longitudinal studies (e.g. Bell & Blanchflower, 2009) provide robust evidence that the lower well-being experienced in the aftermath of unemployment cannot be entirely attributed to selection effects. Rather, leaving the labor force appears to have a direct detrimental effect on human welfare.

Whether the adverse psychological effects of unemployment are sustained over time, potentially producing long-term scarring effects on well-being remains an important question. Unemployment has been shown to make a distinct contribution to later life well-being over and above later experiences of unemployment (Clark et al., 2001; Gallo et al., 2006). However, as yet, studies have not adequately accounted for the role of early life behavioral, emotional, and cognitive difficulties in explaining longitudinal change in well-being. It is essential to consider the role of childhood psychological factors as these may determine later life socioeconomic status, psychological distress, and their interrelation (Deary et al., 2005; Goodman, Joyce, & Smith, 2011; Zammit et al., 2004).

The impact of childhood mental health on outcomes such as adult education and income has been the focus of considerable investigation in the economics literature. For example, Farmer (1995) used data from the British NCDS and found that boys who had externalising behavior problems had lower earnings, lower levels of educational attainment and were less likely to be employed at age 23. In a study which retrospectively asked individuals about their mental health during childhood, Smith and Smith (2010) calculated that the cost of mental health problems in childhood was on average $300,000. Goodman et al. (2011) used the NCDS to establish that children who had poor mental health in childhood had incomes which were 14–18% lower than controls in adulthood. It is therefore likely that childhood emotional and behavioral problems may increase the likelihood of unemployment later in life.

Furthermore, children who display excessive externalising (such as aggressive and anti-social behavior) or internalising behavior (such as withdrawal, anxiety, depression and somatic complaints) early in life have been shown to go on to experience psychological distress and specific psychiatric problems later in life (Caspi, Moffitt, Newman, & Silva, 1996). Thus, an association between unemployment and subsequent low well-being may mask the unfolding of patterns of childhood maladjustment that may draw people out of the labor force and into poor mental health. Similarly, emerging evidence points to the importance of childhood intelligence as a potential determinant of both later life occupational status (Deary et al., 2005; Nettle, 2003) and mental health outcomes (Koenen et al., 2009; Zammit et al., 2004). However, the extent to which the link between unemployment and well-being can be accounted for by intelligence levels in childhood is unclear. The evolving work on the development of cognitive and non-cognitive traits by Heckman, Stixrud, and Urzua (2006) points to the importance of dynamic development of these traits from childhood. By including a model of scarring along with a full set of measures of early conditions, we provide an empirical bridge between these two important and largely unconnected literatures.

Thus, the current paper aims to enhance understanding of the potential long-term effects of life-time unemployment levels on psychological distress among middle-aged adults while controlling for childhood psychological factors that may be the source of adult unemployment outcomes, distress, and covariance between both outcomes. Our study is conducted through a number of stages. Firstly, we replicate standard models of the association between unemployment and the psychological distress of adults. Secondly, we examine the extent to which the duration of unemployment throughout adulthood influences distress at age 50, a test of the 'scarring' hypothesis. Thirdly, we evaluate the degree to which controlling for childhood maladjustment and intelligence influences the relationship between unemployment and distress. Finally, we examine the extent to which controlling for early-life adult distress influences the estimates of the effects of unemployment on psychological distress.

Method

Study population

Participants were drawn from the National Child Development Study (NCDS), an ongoing longitudinal study of a cohort of 17,634 children born in Britain during the week of 3rd–9th of March 1958. To date there have been eight follow-up sweeps that have traced members of the cohort throughout childhood (age 7, 11, and 16 years) and into adulthood (age 23, 33, 42, 46, and 50 years). The current study aimed to test the relation between the duration of unemployment from age 16 to 50 and experiences of psychological distress at age 50, adjusting for a range of potential confounding factors including childhood behavioral and emotional factors and cognitive ability at age 11, distress at age 23, and demographic characteristics including unemployment at age 50 years. This analysis required data from six sweeps of the NCDS (ages 11, 23, 33, 42, 46, and 50).

The final sample was composed of 6253 cohort members with available life-time unemployment data, combined with data detailing childhood intelligence and behavior problems, distress at age 23 and a comprehensive set of demographic and background control variables provided at age 50 years. NCDS has very low attrition and this has been analyzed in a number of other papers. Hawkes and Plewis (2006) show that there is very little evidence for differential attrition based on observable socioeconomic characteristics. While unemployment is a statistically significant component of drop-out by wave 6, the mean predicted probabilities of being a non-respondent from a model including unemployment and several other demographic variables are .130 for the non-responders and .105 for the responders. As the current study utilized secondary data it was exempt from the ethical review process of the Stirling Management School Ethics Committee.

Measures

Childhood behavioral and emotional problems

Behavioral and emotional problems at age 11 years were assessed using the Bristol Social Adjustment Guide, a teacher-rated measure which identifies emotional maladjustment and behavioral difficulties in school-aged children (Stott, 1969). In this study we

used the total score of 12 subscales (unforthcomingness, withdrawal, depression, anxiety for acceptance by adults, hostility toward adults, 'writing off' of adults and adult standards, anxiety for acceptance by children, hostility toward children, restlessness, 'inconsequential' behavior, miscellaneous symptoms, and miscellaneous nervous symptoms) to form a composite measure of childhood behavioral/emotional problems. The reliability of the combined scale, as measured by Cronbach's alpha, is high with an alpha coefficient of .78.

Childhood cognitive ability

Childhood intelligence was assessed using an 80-item general-ability test developed by the National Foundation for Educational Research in England and Wales (Pigeon, 1964). Each item was composed of four logically linked verbal or non-verbal items, followed by a related series of three items and a missing word or shape/symbol. Participants selected the missing component from a list of five options to complete the sequence. Scores on this test have shown high levels of test-retest reliability ($r = .94$) and have demonstrated close accordance with reading and mathematics tests (Michael, 2003) and a 11-plus selection test ($r = .93$; Douglas, 1964).

Psychological distress

Feelings of distress were assessed using 9 items from the Malaise Inventory (Rutter, Tizard, & Whitmore, 1970) which was completed by the study participants at age 23 and age 50 years. The Malaise Inventory is an yes–no question scale and the items gauge whether a participant tends to experience a range of negative feelings including depression, worry, fear, nervousness, aggressiveness, irritation, and tiredness (scores range from 0 to 9). The Cronbach's alpha for this scale was .68 at age 23 and .79 at age 50.

Employment status

At ages 23, 33, 42, 46, and 50 years each participant's current main economic activity was coded into one of 12 options: full-time employee, part-time employee, full-time self-employed, part-time self-employed, unemployed, full-time education, on a government scheme, temporarily sick or disabled, permanently sick or disabled, engaging in home or family care, retired, or 'other'. Participants also provided a detailed account of their employment history in the time period since they had been interviewed previously. For the purposes of the current study the unemployed group was defined as those described as such within the above set of options. A life-time unemployment duration variable was then derived by combining periods of unemployment and the total duration in months that this amounted to for each participant ($M = 6.22$, SD = 19.99). As many participants had little unemployment experience this variable was highly positively skewed. Unemployment duration was therefore recoded to indicate the number of years each participant had spent unemployed between the ages of 16 and 50 ($M = .57$, SD = .99, Min = 0, Max = 4, where 0 = Never unemployed, 1 = 1–12 months unemployed, 2 = 13–24 months unemployed, 3 = 25–36 months unemployed, 4 = over 36 months unemployed).

Covariates

Participants indicated their gender, marital status (single-never married, married-1st marriage, re-married, separated, divorced, widowed), income, highest educational qualification achieved (Categorized as follows: 0 = No academic qualification, 1 = GCSE D–E, 2 = Other Scottish Qualifications, 3 = GCSE A–C/Scottish standards intermediate 1, 4 = Intermediate 2/AS Levels or 1 A level, 5 = 2 + A Levels, Scottish Higher/6th, 6 = Diploma, 7 = Degree/PGCE/Other degree level qualification, 8 = Higher degree), the presence of a long standing illness (Yes/No) or disability or infirmity (Yes/No). Supplementary robustness analyses were conducted to identify whether the key results were affected by the inclusion of smoking (Yes/No), exercise (Yes/No), or the frequency of alcohol consumption at age 50 (1 = On most days, 2 = 2–3 days a week, 3 = Once a week, 4 = 2–3 times a month, 5 = Once a month, 6 = Less often or on special occasions, 7 = Never nowadays, 8 = Has never had an alcoholic drink).

Statistical analysis

Our model aimed to test the link between life-time unemployment and psychological distress over a broad time horizon while accounting for potentially confounding variables that may explain covariance between unemployment and distress. To accurately estimate the impact of unemployment on psychological distress we capitalized on the panel nature of the data in several ways. Firstly, we included participant accounts of their unemployment experiences which were drawn from several waves (age 23, 33, 42, 46, and 50 years). We took the duration of unemployment between 1974 and 2008 as our starting point and used this variable to predict psychological distress at age 50 (*model 1*). This strategy allowed preceding emotional/behavioral and cognitive factors at age 11 years (*model 2*) and subjective ratings of psychological distress at age 23 years (*model 3*) to be accounted for, whilst retaining an extensive period over which the potential adverse psychological effects of unemployment can be examined. In addition, a broad set of demographic characteristics provided at age 50 were considered: gender, marital status, main economic activity, income, highest educational qualification achieved, and health. Hierarchical multiple linear regression was used to test each of the study hypotheses. The formal specification of each of the hierarchical analytic models is detailed below:

Model 1: Psychological Distress at age $50_i = b_0 + b_1$ Unemployment duration from 1974 to $2008_i + b_2$ Demographic factors incl. unemployment at $50_i + \varepsilon_i$

Model 2: Psychological Distress at age $50_i = b_0 + b_1$ Unemployment duration from 1974 to $2008_i + b_2$ Demographic factors incl. unemployment at $50_i + b_3$ Childhood behavior/emotional problems$_i + b_4$ Childhood intelligence$_i + \varepsilon_i$

Model 3: Psychological Distress at age $50_i = b_0 + b_1$ Unemployment duration from 1974 to $2008_i + b_2$ Demographic factors incl. unemployment at $50_i + b_3$ Childhood behavior/emotional problems $_i + b_4$ Childhood intelligence$_i + b_5$Psychological Distress at age $23_i + \varepsilon_i$

Results

Initial analyses

Thirty five per cent of the sample experienced at least one spell of unemployment between the age of 18 and 50 ($N = 2188$) and 1.8% were unemployed at age 50 ($N = 116$). Unadjusted analyses revealed that the duration of unemployment over the life-span was linked to raised levels of psychological distress at age 50, as shown in Table 1. As anticipated, those who exhibited fewer emotional/behavioral problems in childhood and those with high levels of cognitive ability in childhood were at a reduced risk of *both* unemployment and psychological distress (age 50) later in life. The duration of unemployment was also linked to experiences of distress at age 23 and unemployment at age 50, as outlined in Table 1.

Psychological distress

Overall, participants experienced few symptoms of psychological distress and distress was found to increase from age 23

Table 1
Correlation matrix detailing relationships between key study variables.

Variable	Unemployment at 50 yrs[a]	Distress at 23 yrs	Distress at 50 yrs	Behavioral/emotional problems at age 11 yrs	Intelligence at age 11 yrs
Life-time unemployment[b]	.28**	.05**	.07**	.13**	−.06**
Intelligence at age 11 yrs	−.06**	−.17**	−.10**	−.33**	–
Behavioral/emotional problems at age 11 yrs	.05**	.10**	.07**	–	–
Distress at age 50 yrs	.07**	.42**	–	–	–
Distress at age 23 yrs	.04*	–	–	–	–

*$p < .05$, **$p < .005$.
[a] Unemployment at age 50 is contrasted with those in full-time employment at age 50 ($N = 4434$ for correlation analyses utilizing this variable).
[b] Life-time unemployment duration, 0 = Never unemployed, 1 = 1–12 months, 2 = 13–24 months, 3 = 25–36 months, 4 = over 36 months unemployed.

($M = 1.12$, SD = 1.47) to age 50 ($M = 1.4$, SD = 1.85) as is typical ($t = 12.16$, $p < .001$; Blanchflower & Oswald, 2008). The test of *model 1* showed that psychological distress at age 50 was predicted by unemployment at 50 ($b = .5$, SE = .17; $t = 2.89$, $p < .005$) and crucially unemployment duration throughout adulthood ($b = .09$, SE = .024; $t = 3.59$, $p < .005$) in an initial model that adjusted for demographic factors, as outlined in Table 2. Next, we tested *model 2* which showed that accounting for childhood psychological factors marginally attenuated the link between life-time unemployment and distress at age 50 ($b = .082$, SE = .024; $t = 3.42$, $p < .005$), as shown in Table 2. Further adjusting for psychological distress at age 23 (*model 3*) slightly diminished but did not eliminate the link between participants' unemployment history and psychological distress at age 50 years ($b = .05$, SE = .022; $t = 2.11$, $p < .05$). We conducted a robustness test in order to identify if adjustment for key health behaviors at age 50 (i.e. smoking, exercise, and alcohol consumption) would affect our estimates of the emotional impact of unemployment. Including the health behavior variables alongside demographic factors, childhood psychological factors, and early adulthood distress had little impact on the association between unemployment at distress at age 50 years ($b = .48$, SE = .165; $t = 2.96$, $p < .005$). Similarly, the link between the life-time duration of unemployment and later life distress was unaffected by the inclusion of health behaviors ($b = .044$, SE = .022; $t = 1.99$, $p < .05$).

Discussion

The current study used data from the long-running British NCDS cohort to provide novel longitudinal estimates of the effects of unemployment from young adulthood to middle-age on psychological distress in midlife. Several findings from this study warrant specific comment. First, unemployment at age 50 was closely linked with simultaneously elevated distress levels in models that adjusted for prior distress levels, childhood cognitive functioning and early life emotional and behavioral problems. Thus, the negative feelings associated with being currently unemployed are unlikely to be due to poor mental health or low intelligence leading to job loss. Rather, as described in prior research, leaving the labor force appears to have pronounced emotional effects (Wanberg, 2012). Second, we identified critical evidence on the extent of the long-term scarring effects of unemployment. Those who were unemployed for longer periods throughout adulthood experienced raised levels of distress levels at age 50, demonstrating that joblessness is likely to have long-run societal effects.

To test the robustness of the long-term affective impact of unemployment we included potentially the most comprehensive controls for well-being persistence over the life-course that have been employed in estimating unemployment scarring. We showed that those who experienced emotional maladjustment and poor cognitive functioning in childhood were at elevated risk of being unemployed and distressed later in life. This finding supports the contention that childhood psychological factors may represent distinct pathways to later occupational and mental health outcomes (Farmer, 1995; Goodman et al., 2011). Moreover, it is clear that childhood psychological factors are important 'third' variables that are typically omitted but should be controlled for when estimating the psychological consequences of unemployment. In addition, our models accounted for early adulthood distress levels, which may determine selection out of the labor force and later distress. Our final model integrated both childhood and adulthood affective and ability controls to show that these factors partially accounted for the observed scarring effect of joblessness. However, despite the inclusion of a broad array of controls, unemployment over the life-span remained predictive of psychological distress in midlife.

Further work is needed to identify the psychological mechanisms through which unemployment affects later well-being. One possibility is that the experience of unemployment leads people to infer that their future labor market prospects will be poor and that this insecurity generates feelings of distress. In support of this idea, Knabe and Ratzel (2011) recently demonstrated that after a period of unemployment those who remain unemployed often feel they are unlikely to be reemployed and those who have been reemployed believe their jobs are not secure. Crucially, these unfavorable beliefs appeared to explain much of welfare effects of unemployment.

Table 2
Hierarchical regression of life-time unemployment on psychological distress at age 50 ($N = 6253$).

	Model 1[a]		Model 2[a] + psychological factors at age 11		Model 3[a] + psychological distress at age 23	
	B (SE)	*t*	*B* (SE)	*t*	*B* (SE)	*t*
Life-time unemployment[b]	.09 (.024)	3.59**	.082 (.024)	3.42**	.05 (.022)	2.11*
Unemployed at age 50	.5 (.17)	2.89**	.49 (.17)	2.82**	.48 (.16)	2.97**
Intelligence at age 11	–	–	−.005 (.002)	−2.7**	−.001 (.002)	−.35
Behavioral/emotional problems at age 11	–	–	.007 (.003)	2.02**	.001 (.003)	.36
Distress at age 23	–	–	–	–	.47 (.015)	31.4**

*$p < .05$, **$p < .005$.
[a] Included in the analyses but not shown are: gender, education, income, main economic activity, and the presence of a long standing illness/disability at age 50.
[b] Life-time unemployment duration, 0 = Never unemployed, 1 = 1–12 months, 2 = 13–24 months, 3 = 25–36 months, 4 = over 36 months unemployed.

Identifying precisely why psychological 'scarring' occurs will permit the development of novel prevention and intervention strategies. For instance, targeting cognitions linking prior unemployment experiences to future employment expectations may generate psychological resilience to unemployment. In particular, by augmenting maladaptive attributions about the cause of unemployment and by enhancing perceptions of control over future employment, intervention programs could diminish fear of unemployment. Such psychological solutions would complement economic efforts to increase employment and foster job security.

In summary, this study provides further evidence of potential psychological scarring from unemployment that appears to persist throughout adulthood. Our results are strengthened by a number of factors, including reliable data, long-term follow-up, and statistical models controlling for a range of prior factors relating to mental health and ability. Models that do not consider childhood psychological factors and early adulthood welfare may overestimate the effects of contemporaneous unemployment. It is imperative that future research examines further the complex causal relationship between unemployment and psychological well-being and how distress following unemployment might affect job-search intensity, health behaviors and resultant employment outcomes. This research will provide essential insights into how to improve labor market and well-being outcomes for the young unemployed. Such research is particularly timely given the large increases in unemployment seen globally as a result of the financial crisis.

Appendix A. Supplementary data

Supplementary data related to this article can be found at http://dx.doi.org/10.1016/j.socscimed.2012.12.008.

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