Short report

Childhood psychological distress and youth unemployment: Evidence from two British cohort studies

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A R T I C L E   I N F O

A B S T R A C T

The effect of childhood mental health on later unemployment has not yet been established. In this article we assess whether childhood psychological distress places young people at high risk of subsequent unemployment and whether the presence of economic recession strengthens this relationship. This study was based on 19,217 individuals drawn from two nationally-representative British prospective cohort studies; the Longitudinal Study of Young People in England (LSYPE) and the National Child Development Study (NCDS). Both cohorts contain rich contemporaneous information detailing the participants' early life socioeconomic background, household characteristics, and physical health. In adjusted analyses in the LSYPE sample ($N = 10,232$) those who reported high levels of distress at age 14 were 2 percentage points more likely than those with low distress to be unemployed between ages 16 and 21. In adjusted analyses of the NCDS sample ($N = 8985$) children rated as having high distress levels by their teachers at age 7 and 11 were 3 percentage points more likely than those with low distress to be unemployed between ages 16 and 23. Our examination of the 1980 UK recession in the NCDS cohort found the difference in average unemployment level between those with high versus low distress rose from 2.6 pct points in the pre-recession period to 3.9 points in the post-recession period. These findings point to a previously neglected contribution of childhood mental health to youth unemployment, which may be particularly pronounced during times of economic recession. Our findings also suggest a further economic benefit to enhancing the provision of mental health services early in life.

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1. Introduction

Understanding how childhood mental health can shape economic outcomes over the lifespan is a key question that cuts across health, education, and employment policy. Depression and mental health problems in childhood have been shown to detrimentally affect family income (Goodman et al., 2011; Smith and Smith, 2010), labor supply (Goodman et al., 2011), educational attainment (Fletcher, 2008; Cornaglia et al., 2012), and earnings in adulthood (Fletcher, 2013). A recent review of this literature concluded that the influence of early mental health problems on later socioeconomic success (e.g. education, earnings) appears to be more pronounced and pervasive than that of childhood physical health conditions (Delaney and Smith, 2012). In this paper we extend existing research by estimating the association between childhood psychological distress and unemployment in the formative early stages of working life.

Numerous studies of adults have documented a range of affective and mental health problems amongst the unemployed (McKee-Ryan, Song, Wanberg & Kinicki, 2005; Paul and Moser, 2009). This link has been attributed to both the 'scarring' effects of unemployment on subsequent mental health (Clark et al., 2001; Daly and Delaney, 2013) and the effect of poor mental health on subsequent unemployment (Butterworth et al., 2012). However, firmly establishing the direction of causality of the link between unemployment and mental health in adult samples is difficult due to the bidirectional and mutually reinforcing nature of this relationship. By examining how psychological distress prior to labor market entry affects subsequent unemployment we avoid such econometric problems in the current study.

Specifically, we use data from two cohort studies to test whether measures of psychological distress taken in childhood are associated with unemployment between the ages of 16 and 21 (Study 1) and 16 and 23 (Study 2). We also examine whether the role of

distress in conditioning employment prospects may be amplified during the difficult labor market of a major economic recession (Study 2). Recent research examining repeated cross-sectional samples of European citizens has shown those with poor mental health experienced a more marked increase in unemployment than others in the period from before to after the 2008 recession (Evans-Lacko et al., 2013). Prospectively examining whether distress measured prior to the onset of unfavourable macroeconomic conditions leads to substantially higher unemployment levels is crucial in order to understand the causes of unemployment and to adapt mental health policy in the context of economic downturns.

2. Study 1: methods

2.1. Study population

Participants were drawn from the Longitudinal Study of Young People in England (LSYPE), a nationally representative cohort of around 15,500 English residents born in 1989/90. We examined the relationship between distress measured at age 14 and the likelihood that a participant is unemployed over the 2006–10 period. The LSYPE high frequency monthly labor force data combines the unemployed and inactive and classifies this group as not in education, employment or training (NEET). Because we are interested in the unemployed only we removed the majority of inactive participants from the NEET group by excluding 194 female participants who reported giving birth as of October 2010 and henceforth refer to those retained in this group as "unemployed". After deleting observations which did not contain data on our main covariates we used a sample of 404,556 monthly employment status observations for 10,232 cohort members. Table S1 contains descriptive statistics for the sample. In supplementary analyses we estimated the association between distress levels and unemployment in four yearly waves of data where it was possible to exclude all inactive participants from the analysis.

2.2. Measures

2.2.1. Childhood psychological distress

Psychological distress was assessed at age 14 using the 12-item General Health Questionnaire (GHQ-12). The GHQ-12 is a short screening tool for gauging non-specific psychiatric morbidity in the general population (Goldberg and Williams, 1988) by asking to what extent the respondent has been unable to carry out normal functions ("Lost much sleep over worry") and whether they have been feeling distressed ("Been thinking of yourself as a worthless person"). It has been employed extensively in youth populations and validated in adolescents (Banks, 1983; French and Tait, 2004). The typical cut-off for GHQ 'caseness' is 2/3 (Goldberg and Williams, 1988) with 3/4 considered a more stringent cut-off that has been shown to demonstrate high levels of sensitivity and specificity in several samples (Makowska et al., 2002; Yusoff et al., 2010). The cohort members were given a score of 1 for each item if they reported more or much more negative feelings than usual and a score of 0 if they reported no more negative feelings than usual or none at all. These scores were then summed to produce a score range of 0–12. We employed the 3/4 cut-off as an indicator of significant distress and potential 'caseness'. Specifically, we created a categorical variable coded as 0 for GHQ scores of 0 (labelled 'Low Distress', representing 50 per cent of the sample), 1 for GHQ scores between 1 and 3 ('Medium Distress', 32 per cent) and 2 for scores between 4 and 12 ('High Distress', 18 per cent). The average score on the GHQ measure was 1.69 (SD = 2.50) with females reporting more psychological distress, as is typical (Males = 1.21,

Females = 2.18; t = 20.08, $p < 0.001$) (see Fig. S1 for variable distribution).

2.2.2. Unemployment

The LSYPE contains monthly employment activity data covering 2006–10 (approximately age 16–21), constructed from self-reports elicited in waves 4–7. We used these data to generate two outcome variables: (i) a variable tracking monthly employment status, coded as 0 for anyone in education, training or employment and coded as 1 for the unemployed and (ii) a continuous variable measuring the total months of unemployment. Twenty nine per cent of the sample experienced at least one month of unemployment between 2006 and 10 (Mean = 3.17 months, SD = 6.93). In total, 19 per cent of the sample reported 1–12 months unemployment and 10 per cent reported 13–45 months. Although the employment activity data spans the period from September 2006 to May 2010, it is not possible to separate the effects of school-leaving and the 2008 recession on subsequent unemployment because both events occurred concurrently.

2.2.3. Covariates

The main covariates are gender, the main parent's socioeconomic status (SES) derived from their occupation (from I = Higher managerial, administrative and professional occupations, to VIII = long-term unemployed) and a monthly time variable to track changing macro-economic conditions. We also included extended controls that might plausibly affect labor market entry. These controls, described in Supplementary Materials, Section 3b, can broadly be grouped into (i) childhood environmental factors such as the number of siblings in the childhood home and whether English was the main language, (ii) demographic measures such as race and region of birth, and (iii) childhood physical health as gauged by the child's disability status.

2.2.4. Statistical analysis

We specified a Probit model (*Model* 1) to estimate the probability of being unemployed on a monthly basis from ages 16 to 21, controlling for gender, parental SES and a monthly time trend. Standard errors were clustered by individual to account for repeated observations of the same person and we estimated marginal effects after the Probit regression to calculate percentage point changes in unemployment probability (Long and Freese, 2014). We specified a negative binomial model (*Model* 2) to estimate accumulated months of unemployment. A negative binomial model is appropriate for over-dispersed count data: in both Study 1 and 2 there is significant clustering at zero months of accumulated unemployment and the mean number of unemployed months is much lower than the variance (see Sturman, 1999 for the merits of using the negative binomial model versus other models when analyzing count data). The formal specification of each of the analytic models is detailed below:

Model 1: Monthly unemployment status (age 16 to 21)$_{it}$ = b_0 + b_1GHQ-12 category$_i$ + b_2Gender$_i$ + b_3Parental SES$_i$ + b_4Monthly index$_t$ + ε_{it}

Model 2: Total months of unemployment (age 16 to 21)$_i$ = b_0 + b_1GHQ12 category$_i$ + b_2Gender$_i$ + b_3Parental SES$_i$ + ε_i

We also estimated models with: (i) a standardized rather than categorical GHQ measure (ii) an extended set of additional control variables and (iii) a dependent variable excluding the inactive population and estimating only unemployment versus those in education, employment or training.

3. Study 1: results

Between ages 16 and 21 those classified as highly distressed experienced unemployment levels that were on average 2.0 percentage points higher than their low distress peers ($b = 0.020$, SE = 0.005, $p < 0.01$), as detailed in Table 1 and illustrated in Fig. 1. Negative binomial analysis confirmed that the high distressed group experienced significantly more accumulated months unemployed ($b = 0.265$, SE = 0.086, $p < 0.01$) compared to the low distress group, as shown in Table 1. In order to represent this difference more intuitively, we also estimated the average number of months unemployed using the margins command in Stata after estimating Model 2 (for a full description of 'margins' see Long and Freese, 2014). The high distress group experienced 3.86 months of unemployment (95% CI, 3.29–4.43) compared to 2.96 months for the low distress group (95% CI, 2.71–3.22), shown in Fig. 1.

The use of a standardized distress measure did not change the main findings (see Table S3), nor did the inclusion of an extended set of demographic, childhood environment, and health controls, as summarized in columns 2 and 4 of Table 1 and detailed in full in Table S5. Examining the association between distress levels and unemployment excluding those of inactive status for each wave yielded similar results on average as the main analyses, described in Table S7.

4. Study 2: methods

Having demonstrated a link between childhood distress and greater difficulty entering the labor market in Study 1, we next tested the robustness of this relationship using data including additional detail on participants' childhood cognitive ability, temperament and early childhood environment. The data in Study 2 also allowed us to test whether childhood distress was associated with particularly high levels of unemployment after the onset of the early 1980s recession in the United Kingdom.

4.1. Study population

Participants were from the British National Child Development Study (NCDS), a longitudinal study following a cohort of 17,638 people born in Britain in a single week in March 1958. The NCDS contains rich information on the cohort members' childhood characteristics as well as monthly employment activity data from ages 16 to 23. We used employment data from wave 4, which elicited responses from 68 per cent of all-time participants at age 23. After matching childhood data from birth, age 7, and age 11 waves with employment data gathered at age 23 and deleting observations which did not contain data for the main covariates, we
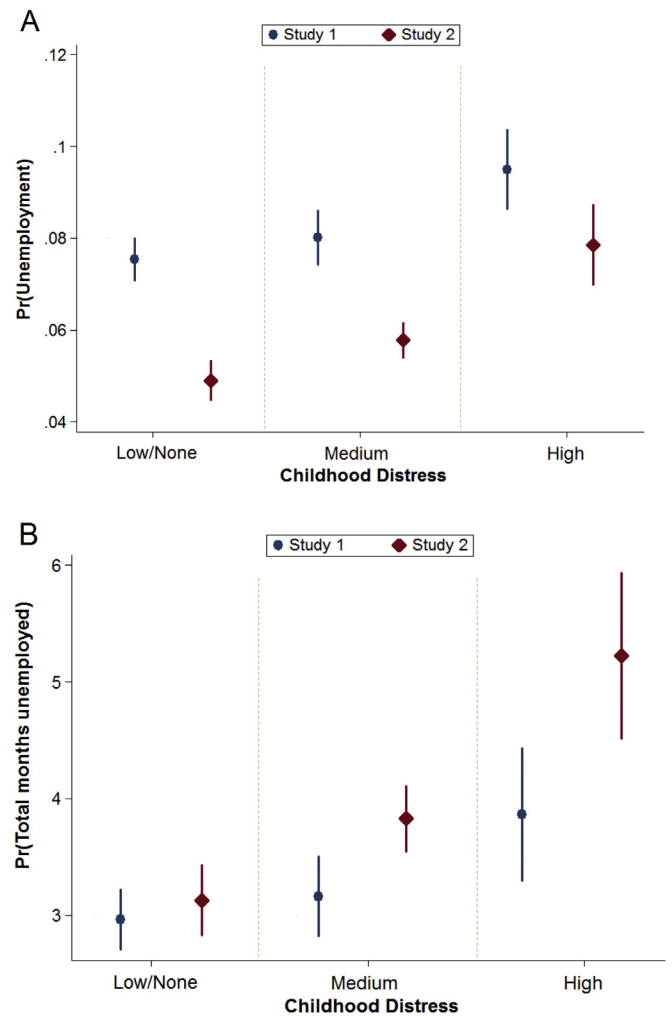

Fig. 1. Predictive margins with 95% CIs showing (A) predicted probability of unemployment across all months surveyed (B) predicted total number of months unemployed, for different levels of childhood distress in the Longitudinal Study of Young People in England (Study 1) and National Child Development Study (Study 2).

constructed a sample of 597,858 monthly unemployment status observations for 8985 cohort members. Although some degree of attrition was observed, Hawkes and Plewis (2006) show that those who left the survey did not differ significantly from the rest of the sample on the basis of observable socioeconomic characteristics. Table S2 contains descriptive statistics for the sample.

Table 1
Regression of unemployment between ages 16 and 21 on childhood psychological distress in the LSYPE sample ($N = 10,232$).

Outcome variable	Monthly unemployment status[a]	Monthly unemployment status fully adjusted[a]	Total months of unemployment[b]	Total months of unemployment fully adjusted[b]
Observations	404,556	394,197	10,232	9964
Medium distress[c]	0.005	0.006	0.065	0.087
	(0.004)	(0.004)	(0.070)	(0.070)
High distress[c]	0.020***	0.022***	0.265***	0.287***
	(0.005)	(0.005)	(0.086)	(0.087)

Included in analyses but not shown are: gender, parental socioeconomic status (all columns), and month of observation (col. 1 & 2). Fully adjusted models add further controls for race, childhood disability, family structure, region, and parental education levels.
Robust standard errors in parentheses.
***$p < 0.01$.
[a] Regressions contain Probit marginal effects coefficients, clustered by id.
[b] Regressions contain negative binomial coefficients.
[c] Base category is Low distress = a GHQ score of 0; Medium distress = GHQ scores 1-3; High distress = 4+.

4.2. Measures

4.2.1. Childhood psychological distress

At ages 7 and 11 the cohort members were assigned a 'depression' score by their teacher based on questions from the depression subscale of the British Social Adjustment Guide. This measure asked teachers to rate children on their depression ("Expression is miserable, depressed"), apathy ("In asking teacher's help too apathetic to bother", "Apathetic (just sits)"), and lethargy levels ("Lacks physical energy", "Has no life in him"). We constructed a measure of childhood distress by averaging age 7 and 11 scores on this measure. This new variable ranges from 0 to 9 where high scores indicate greater distress. We then created a three-category distress variable by grouping those with scores of 0 ('Low Distress', 36 per cent of the sample), 0.5–2 ('Medium Distress', 49 per cent) and those scoring greater than 2 ('High Distress', 15 per cent). The average score on the distress measure was 0.95 (SD = 1.18) with males rated as having more psychological distress (Males = 1.10, Females = 0.79; t = 12.79, $p < 0.001$) (see Figure S2 for variable distribution and Supplementary Materials, Section 1 for an item list).

4.2.2. Unemployment

When the cohort members were aged 24 they were asked to recall their monthly employment history from age 16 to 23, spanning the period June 1974 to February 1982. We used these data to generate two outcome variables: (i) a variable tracking monthly employment status for the 1974–82 period where being in full-time employment is coded as 0 and being unemployed is coded as 1 and (ii) a continuous variable for summed total months of youth unemployment. This latter variable ranged from 0 to 87 months (Mean = 3.91 months, SD = 8.95) with over 57 percent of the sample reporting 0 months of unemployment, over 33 percent reporting between 1 and 12 months and the remaining 9.4 per cent accounting for 13–87 months.

4.2.3. Covariates

The main controls were gender, the father's socioeconomic status (from I = Higher administrative occupations, to V = Unskilled workers) which we used as an SES proxy for the child and cognitive ability at age 11 as assessed by an 80-item general ability test (Pigeon, 1964). Given that lower childhood cognitive ability is associated with higher adult distress (Gale et al., 2009) and unemployment (Caspi et al., 1998), this may reduce potential confounding of the main effect of distress. We also controlled for childhood self-control given that this is associated with unemployment over the lifespan (Daly et al., submitted for publication) and a monthly time variable to take into account changing macro-economic conditions. As a robustness check to determine whether childhood distress predicted youth unemployment above and beyond distress later in life, we also included a measure of adult distress elicited at age 23 using the 9-item Malaise Inventory (Rutter et al., 1970) (see Supplementary Materials, Section 1 for an item list).

As in Study 1, we included extended childhood controls that might influence employment trajectories. These controls, available in the Supplementary Materials, Section 3b, can be grouped into (i) adverse childhood experiences such as domestic tension, parental unemployment or sickness and housing or financial difficulties (ii) physical health such as low birth weight or neurological problems (e.g. epilepsy, intellectual disability) and (iii) demographics such as region of birth and race.

4.2.4. Statistical analysis

We specified a Probit model (*Model* 3) to estimate the impact of childhood psychological distress on later unemployment on a monthly basis from ages 16 to 23. As in Study 1, standard errors were clustered to account for repeated observations on individuals and we estimated marginal effects. Next, we estimated a negative binomial model (*Model* 4) to gauge the association between distress and accumulated months of unemployment. Across both sets of analyses the main control variables were gender, childhood cognitive ability and self-control, and socioeconomic status. Model 3 also included a monthly time variable. We also estimated extended models with a comprehensive range of further control variables. The formal specification of each of the core hierarchical analytic models is detailed below:

Model 3: Monthly unemployment status (age 16 to 23)$_{it}$ = b_0 + b_1Childhood distress category$_i$ + b_2Gender$_i$ + b_3Childhood cognitive ability$_i$ + b_4Childhood self-control$_i$ + b_5Parental SES$_i$ + b_6Monthly index$_t$ + ε_{it}

Model 4: Total months of unemployment (age 16 to 23)$_i$ = b_0 + b_1Childhood distress category$_i$ + b_2Gender$_i$ + b_3Childhood cognitive ability$_i$ + b_4Childhood self-control$_i$ + b_5Parental SES$_i$ + ε_i

Lastly, we specified a Probit model (*Model* 5) to conceptualize the interaction of distress and the onset of the 1980s UK recession, dated as starting in January 1980 (Jenkins, 2010). We created a binary variable for the recession where 0 = June 1974–December 1979 (participants aged 16–21) and 1 = January 1980–February 1982 (participants aged 21–23). We then interacted this variable with the distress measure to determine whether the more distressed were more likely to become unemployed after the recession began. Specifically, after running a Probit regression we estimated the average predicted probability of unemployment for different distress levels before and after the recession using the margins command in Stata (Long and Freese, 2014). We entered this interaction variable and its constituent parts simultaneously in the regression in line with recommended practice (Aiken and West, 1991).

Model 5: Monthly unemployment status (16–23yrs)$_{it}$ = b_0 + b_1Childhood distress category$_i$ + b_2Gender$_i$ + b_3Childhood cognitive ability$_i$ + b_4Childhood self-control$_i$ + b_5Parental SES$_i$ + b_6Monthly index$_t$ + b_7Recession$_t$ + b_8Childhood distress category$_i$*Recession$_t$ + ε_{it}

As in Study 1, we also estimated models with: (i) a standardized rather than categorical distress measure and (ii) an extended set of additional control variables.

5. Study 2: results

5.1. Unemployment regressions

High and medium distress significantly predicted 3 (High: b = 0.030, SE = 0.005, $p < 0.01$) and 0.9 (Medium: b = 0.009, SE = 0.003, $p < 0.01$) percentage points higher unemployment between ages 16 and 23 compared to the low distress group, as detailed in Table 2 and illustrated in Fig. 1. Negative binomial analysis finds that both these groups accumulated significantly more months of unemployment compared to the low distress group (Medium: b = 0.205, SE = 0.056, $p < 0.01$; High: b = 0.513, SE = 0.086, $p < 0.01$). As in Study 1, we also estimated the average number of total months of unemployment by level of distress by using the margins command after estimating Model 4. The high distress group experienced 5.21 months of unemployment (95% CI, 4.53–5.90) compared to 3.83 months for the medium distress

Table 2
Regression of unemployment between ages 16 and 23 on childhood psychological distress in the NCDS sample (N = 8985).

Outcome variable	Monthly unemployment status[a]	Monthly unemployment status fully adjusted[a]	Total months of unemployment[b]	Total months of unemployment fully adjusted[b]
Observations	597,858	321,950	8985	4925
Medium distress[c]	0.009***	0.009***	0.205***	0.229***
	(0.003)	(0.003)	(0.056)	(0.075)
High distress[c]	0.030***	0.027***	0.513***	0.568***
	(0.005)	(0.006)	(0.086)	(0.119)

Included in analyses but not shown are: gender, parental socioeconomic status, childhood intelligence and self-control (all columns), and month of observation (col. 1 & 2). Fully adjusted models add further controls for extensive set of demographic characteristics, adverse childhood experiences, and physical health variables.
Robust standard errors in parentheses.
***$p < 0.01$.
[a] Regressions contain Probit marginal effects coefficients, clustered by id.
[b] Regressions contain negative binomial coefficients.
[c] Base category is Low distress = a score of 0; Medium distress = Distress scores 0.5–2; High distress = 2.5–9.

group (95% CI, 3.57–4.10) and 3.13 months for the low distress group (95% CI, 2.83–3.41).

As in Study 1, the use of a standardized distress measure did not change the main findings (see Table S4), nor did the inclusion of an extended set of demographic, childhood environment, and health controls, as summarized in columns 2 and 4 of Table 2 and detailed in full in Table S6. Lastly, while adult distress had a large and significant association with youth unemployment in terms of probability of monthly unemployment ($b = 0.044$, SE = 0.007, $p < 0.01$) and total duration of months unemployed ($b = 0.453$, SE = 0.016, $p < 0.01$), including it as a covariate in Model 3 did not substantially affect the coefficient for childhood distress. This indicates that childhood distress incurs a cumulative disadvantage on later employment outcomes above and beyond adult distress.

5.2. Differential response to recession

We first estimated an OLS regression using the form described in Model 5 and identified a significant interaction between medium distress levels and the presence of the economic recession ($b = 0.013$, SE = 0.004, $p < 0.01$) and between high distress levels and the recession dummy ($b = 0.036$, SE = 0.008, $p < 0.01$). These coefficients indicated that the association between distress and unemployment was stronger during the recession, particularly amongst the highly distressed. We next examined the predicted probability of unemployment for different distress groups before and after the recession. Prior to the recession the average predicted probability of unemployment for the low distress group was 4.3% and 6.9% for the high distress group. In the post-recession period

the probability of unemployment rose to 6.2% for the low distress group and 10.1% for the highly distressed. Contrasting the pre- and post-recession periods, the difference in unemployment level between the high and low distress groups therefore increased by 50 per cent (from a 2.6 point gap to a 3.9 point gap) after controlling for covariates. Taken together these analyses suggest that the high distress group were disproportionately more likely to be unemployed after the recession began. This trend is shown graphically in Fig. 2 and Fig. S3 and detailed in Table S8.

6. Discussion

In this study we found that differences in psychological distress are evident in childhood and appear to shape early career labor market prospects. Using data from two nationally representative longitudinal datasets we showed, for the first time, that highly distressed children experience youth unemployment levels higher than their less distressed peers. Given that distress is measured in childhood, years before the cohort members first entered the labor market, our methodology also eliminates potential econometric issues of endogeneity between experienced unemployment and psychological distress. These sizeable effects (2–3 percentage points) were robust to the inclusion of a broad set of potential confounding variables and were consistent across estimates derived from self-reported distress levels (Study 1) and teacher-rated distress levels (Study 2). The link between childhood distress and unemployment was not markedly affected by adjustment for adult distress in Study 2, suggesting that childhood distress may set in motion a broad set of effects (e.g. social,
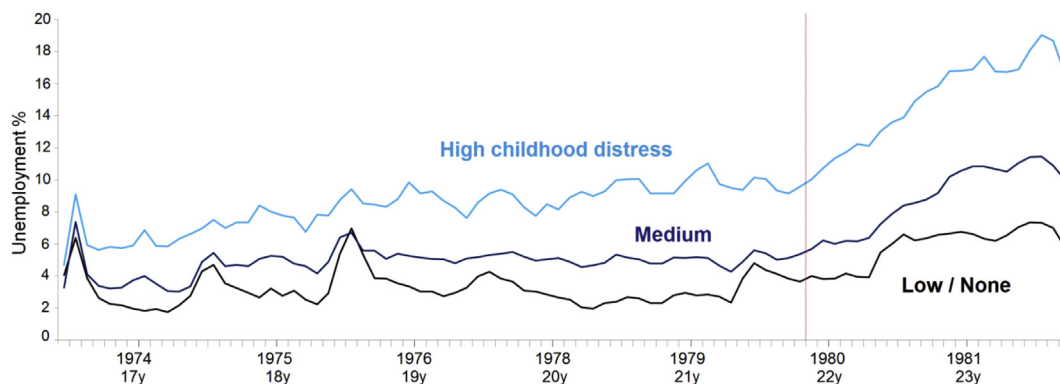

Fig. 2. Descriptive statistics describing unemployment in the NCDS from August 1974–November 1981 by levels of childhood distress. The year above the cohort members' age refers to March of that year, the month when the cohort members were born. The vertical line denotes the onset of the U.K. recession in January 1980. Five months at the beginning and end of the data-range are omitted due to small sample sizes.

educational, health) that act to influence later employment, above and beyond the effects of adult distress.

Furthermore, we found in Study 2 that the impact of the economic shock of the 1980 UK recession appeared to be much greater amongst the highly distressed. This was most evident in the difference in unemployment levels between the low and high distress groups which grew by 50 per cent in the pre-to post-recession period. This finding has clear contemporary relevance given the marked rise in youth unemployment in much of Europe and the US following the 2007 recession. Whether those with poor initial mental health were more vulnerable to exclusion from the labor force during the most recent economic crisis requires investigation, particularly given the potential mutually reinforcing relationship between mental health problems and unemployment (Clark et al., 2001; Butterworth et al., 2012; Evans-Lacko et al., 2013).

These findings also suggest several plausible pathways from childhood distress to later unemployment that require further investigation. Early psychological distress might lead to youth unemployment by adversely affecting job performance and increasing absenteeism (Lerner and Henke, 2008; Lagerveld et al., 2010). Distress could also act to impair job search intensity (McKee-Ryan et al., 2005; Kanfer et al., 2001) and reduce investment in further training and human capital accumulation (Fletcher, 2008; Berndt et al., 2000). Finally, employers may discriminate against job applicants with potential mental health issues or be unwilling to accommodate existing employees with mental health issues, particularly in competitive labor markets (Evans-Lacko et al., 2013; Chatterji et al., 2011; Callard, 2012).

There are three main limitations of this study. Firstly, there may be unobserved confounding variables which affect both childhood distress and youth unemployment, such as genetic factors or childhood environmental characteristics not fully captured by the data. Secondly, while we use a well-validated measure of childhood distress in Study 1, such a measure was not available in Study 2. However, this latter teacher-rated measure appears to gauge distress by assessing apathy, depression and lethargy. Lastly, although we found that the highly distressed were more likely to become unemployed after the 1980s recession, the generalizability of this finding is unclear – this assocation may be specific to the time period, the country or the nature of that particular recession.

In summary, our findings add to the growing literature which suggests that mental health, like cognitive abilities and socio-emotional skills, can be considered as an important factor involved in the production of economic success (Goodman et al., 2011; Smith and Smith, 2010; Delaney and Smith, 2012; Cunha et al., 2010). Layard (2013) has described mental health as a frontier of labor economics and called for more recognition of its influence on economic outcomes and greater mental health promotion. Our findings support these arguments and suggest that reduced unemployment may be an additional benefit of intervention programs targeting childhood mental health. Given that our findings demonstrate an association between childhood psychological distress and unemployment but not a precise mechanism linking the two, additional policy implications are necessarily speculative. Enhanced labor market activation programs for those with mental health problems (see Caplan et al., 1989; Vinokur et al., 2000) and increased efforts to reduce stigma and eliminate discriminatory work practises may help attenuate the link between psychological distress and unemployment (Rüsch et al., 2005; Stuart, 2006).

Future research should examine whether our central finding of childhood distress robustly predicting unemployment replicates in other datasets and whether the distressed are consistently more likely to become unemployed during recessions. If so, our findings could point to hitherto neglected economic benefits of childhood

mental health interventions and a strong need to consider mental health as a core component in the design of job search programs.

Appendix A. Supplementary data

Supplementary data related to this article can be found at http://dx.doi.org/10.1016/j.socscimed.2014.11.023.

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