

Unemployment and mental health scarring during the life course

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Background: There has been little research on the long-term relationship between unemployment experiences and mental health over the life course. This article investigates the relationship between youth unemployment as well as that of unemployment experiences during later periods and mental health at ages 16, 21, 30 and 42 years. **Methods:** The study makes use of the 'Northern Swedish Cohort' (NSC), a 27-year prospective cohort study. The cohort, investigated at ages 16, 18, 21, 30 and 42 years, consisted of all graduates from compulsory school in an industrial town in Sweden. Of the original 1083 participants, 94.3% of those still alive were still participating at the 27-year follow up. Mental health, measured through a three-item index of nervous symptoms, depressive symptoms and sleeping problems, was analysed using a repeated measures linear mixed models approach using ages 16, 21, 30 and 43 years. Unemployment exposure was measured as exposure to at least a 6-month spell during three periods; 18–21, 21–30 and 30–42 years. **Results:** Youth unemployment was shown to be significantly connected with poorer mental health at all three target ages, 21, 30 and 42 years. Later singular unemployment experiences did not appear to have the same long-term negative effects. There was however an accumulation in poorer mental health among respondents with unemployment experiences during two, and even more so three, of the periods. **Conclusion:** There are long-term mental health scarring effects of exposure to youth unemployment and multiple exposure to unemployment during the life course.

Introduction

High and persistent unemployment across the developed world has renewed interest in the health consequences of unemployment. Previous research has shown that there are not only socioeconomic costs of the unemployment experiences, but that there also are substantial health costs.^{1–3} Contrary to other major 'detachments' from the labour market, e.g. parental leave or studying, periods of unemployment have almost unequivocal negative consequences for those affected, particularly in relation to mental health. Over the last 30 years a great number of high quality longitudinal studies have, through following individuals into unemployment or out of unemployment, shown clear and strong negative effects of unemployment on mental health.^{4–11}

Most of this research has focused on relatively direct effects of unemployment, where re-employment implicitly is assumed to restore mental health to pre-unemployment levels. This resembles psychological set-point theories, where long-term stable levels of psychological well-being are seen as essentially dependent on personality traits. Events, such as unemployment, will lead to reactions but the assumption is that individuals will adapt and return to baseline levels.^{12,13} Most research on unemployment and mental health has (with some exceptions that suffer from methodological problems^{14,15}) not suggested adaptation to the unemployment situation. Duration of unemployment does instead seem to be connected with a plateau or further deterioration of mental health.^{8,10,16}

The relatively short term perspective on the relationship between unemployment and mental health contrasts with how research into socioeconomic consequences of unemployment have long focused

not only on the direct effects of unemployment in terms of duration dependence or economic problems,^{17–19} but on long-term negative effects on labour market careers. Unemployment experiences have been connected with longer term risks of downward occupational mobility and wage penalties.^{20–24} These long-term consequences of unemployment are usually described in terms of unemployment scarring, referring to the visible long-term impacts of unemployment.

As there are scarring effects on the labour market career, scarring effects on mental health can also be expected. There are, however few longitudinal studies that have investigated long-term mental health effects of unemployment. One of the few studies in the field is a Swedish prospective cohort study of school leavers, where Hammarström and Janlert²⁵ found that even after controlling for initial health and later unemployment, early unemployment had an effect on psychological symptoms at the follow-up 14 years later at age 30 years. These findings are supported by few available studies in the field. Using the British national birth cohort, Wadsworth, Montgomery and Bartley followed 5588 men from age 16 to 33 years. They found that unemployment between ages 16 and 27 years had effects on health at age 33 years.²⁶ Mossakowski found similar effects following youths over 15 years in the American National Longitudinal Study of Youth where past unemployment across the transition to adulthood was found to predict higher levels of depressive symptoms.²⁷

These findings about possible mental health scarring of youth unemployment are very interesting, not the least from a public health point of view. If these findings are supported in more studies, the policy implications could be that the health costs of unemployment are much greater than we estimate today when

only the direct effects are taken into account. We therefore want to further extend our research of the possible long-term scarring effects of youth unemployment on mental health by using later follow-ups of the same Swedish cohort used by Hammarström and Janlert in order to examine whether or not the 'scarring' persists in adult age at the 27-year follow-up at age 43 years. At this age, the cohort is much more firmly established both on the labour market as well as in private life as compared with age 30 years. Thus, a possible adaptation to early exposures would be more probable at this age.

In addition, the 27-year follow-up also allows us to investigate not only the long-term effects of youth unemployment, but also if later exposure to unemployment has the same effect and whether mental health consequences of multiple unemployment experiences accumulate over the life. The possibility of such accumulation has been suggested in a longitudinal study of adults by Lucas *et al.* Using yearly information from the German socioeconomic panel (GSOEP), they found strong immediate effects of unemployment on life satisfaction and a gradual adjustment back towards individual baselines. The adjustment was, however not complete even after re-employment and further unemployment experiences led to negative effects as strong as in those who did not have previous unemployment experience.²⁸

Therefore, the aim of this study was to analyse the possible long-term indirect effects of youth unemployment as well as that of later unemployment experiences on adult mental health.

Methods

Sample

The study sample is the Northern Swedish Cohort, which consists of all pupils who were in the last year of compulsory school in a middle-sized town in Northern Sweden in 1981 ($n=1083$). The majority was born in 1965. The cohort had an initial response rate of 99.7% and has been followed with extremely high response rate. At the 26-year follow-up, 94.3% of those still alive ($n=1010$) still participated and they are the ones used for this study. The population has been shown to be representative for their age cohort on a national level.²⁹

Procedure

The cohort has been followed at regular intervals at ages 16 years (in 1981), 18 years (in 1983), 21 years (in 1986), 30 years (in 1995) and 42 years (in 2007). A comprehensive questionnaire has been used, containing validated questions/index on topics such as mental health, socioeconomic status and labour market status. Data about unemployment have been collected with a specially constructed battery of questions regarding occupational history, which was asked at each follow-up. The reports were done for each school-year terms (autumn and spring) during the period between 1981 and 2007. If data were missing, the participants were contacted by phone for a personal interview regarding their occupational history. Details of the study design are described elsewhere.²⁹

The Regional Ethical Review Board in Umeå, Sweden, approved the study.

Measures

Outcome variable

A composite 'Psychological Problems Index' (PPI) was constructed from three questions about the frequency of nervous symptoms, depressive symptoms and sleep problems, respectively on a scale—from 1 (never) to 4 (constantly), during the last year. The items included were chosen to represent psychiatric problems as defined at the time of the original survey³⁰ and taken from well-known and

Table 1 Mean of PPI (ages 16, 21, 30 and 42 years), proportion unemployment exposure at 6 months (ages 21, 30 and 42 years), gender, parental class age 16 years and parental employment age 16 years

Variables	Mean (SD)
Psychological problems (PPI) age 16 years ($n=989$)	4.53 (1.37)
Psychological problems (PPI) age 21 years ($n=990$)	4.41 (1.39)
Psychological problems (PPI) age 30 years ($n=959$)	4.48 (1.47)
Psychological problems (PPI) age 42 years ($n=985$)	4.69 (1.81)
	Proportion
Unemployment exposure at age 18–21 years ($n=995$)	
No exposure	63.5
Exposure	36.5
Unemployment exposure at age 18–30 years ($n=995$)	
No exposure	49.4
Exposure at age 18–21 years only	21.3
Exposure at age 21–30 years only	14.1
Exposure at both ages 18–21 and 21–30 years	15.2
Unemployment exposure at age 18–42 years ($n=995$)	
No exposure	42.8
Exposure at age 18–21 years only	18.1
Exposure at age 21–30 years only	10.1
Exposure at age 30–42 years only	6.7
Exposure two periods	15.8
Exposure all three periods	6.5
Gender ($n=1001$)	
Women	48.0
Men	52.0
Parental class (age 16 years) ($n=1001$)	
Both Blue Collar	35.7
One Blue Collar one White Collar	33.6
Both White Collar	30.8
One parent not in employment (age 16 years) ($n=1001$)	
No	69.5
Yes	30.5
N	

validated surveys^{31,32} As can be seen in Table 1, the mean value of the index was relatively stable over the years although it was somewhat higher at age 16 years and in particular at age 42 years. The combination of items was overall empirically supported and represents one factor in exploratory factor analysis for all years (with no item having a factor loading <0.66 in any year), while Cronbach's α rose from a low 0.57 at age 16 years to more acceptable 0.64 at age 21 years, 0.66 at age 30 years and 0.83 at age 42 years. The relatively low Cronbach's α , especially at age 16 years, might indicate some problems of consistency in the scale at this age. The few items included in the scale here somewhat suppresses Cronbach's α and analyses based on the individual items instead of the scale, provide the same substantive results on each of the items as does dichotomization as well as log transformations of the scale. This led us to keep the original scale as it both limits the number of analyses and has the benefit of providing directly interpretable coefficients.

Exposure variables

Exposure to unemployment was measured as involuntary unemployment during the period between the following data collections: as a youth between the ages 18 and 21 years, during an intermittent period between ages 21 and 30 years and finally between ages 30 and 42 years (Table 1). Youth unemployment (between 18 and 21 years) was defined as an accumulated length of 6 months or more of unemployment during the entire period. Unemployment exposure between the ages 21 and 30 years and 30–42 years was defined as a consecutive 6-month period or longer between the survey waves. The 6-month cut off was here chosen in order to record unemployment experiences that

Table 2 Unemployment exposure at 6 months per period and mean on PPI at age 16 years and at target ages

Exposure variable	Mean PPI at age 16 years	P-value (t-test)	Mean PPI Target age	P-value (t-test)
Unemployment exposure at age 18–21 years	PPI at age 16 years	Not significant	PPI at age 21 years	<0.001
No exposure	4.47		4.26	
Exposure	4.64		4.68	
Unemployment exposure at age 18–30 years	PPI at age 16 years	<0.05	PPI at age 30 years	<0.001
No exposure	4.41		4.24	
Exposure at age 18–21 years only	4.58		4.56	
Exposure at age 21–30 years only	4.65		4.65	
Exposure at both ages 18–21 and 21–30 years	4.72		5.00	
Unemployment exposure at age 18–42 years	PPI at age 16 years	<0.05	PPI at age 42 years	<0.001
No exposure	4.37		4.33	
Exposure at age 18–21 years only	4.54		4.80	
Exposure at age 21–30 years only	4.64		4.64	
Exposure at age 30–42 years only	4.65		4.76	
Exposure to two periods	4.73		5.14	
Exposure to all three periods	4.70		5.71	

represented exposure to actual problems on the labour market and avoid recording frictional unemployment experiences, i.e. that the respondent shortly were between jobs. Six months corresponds with the shortest duration which is separately presented as longer term unemployed in statistics by the Swedish Employment Office and analyses using a 12-month cut off produce similar results (but reduce the exposed groups).

Confounder variables

In addition, a number of available fixed pre-unemployment variables were tested as controls in the analyses. The study found effects on PPI of three background variables that subsequently were included as controls. Gender (1 = woman, 0 = man; separate analysis for men and women show no differences in the correlation between unemployment experiences and mental health. This is in line with recent studies that show the relationship between unemployment and mental health to be similar for men and women in the Swedish context.^{33,34}), Parental social class at age 16 years based on the pupils' answers on two questions regarding their father's and mother's occupation at age 16 years (0 = no working class parent, 1 = one working class parent, 2 = both parents working class) according to the SEI-manual³⁵ and parental involuntary unemployment at age 16 years, based on the pupils' answers on two questions regarding their father's and mother's current employment status at age 16 years (0 = no parent in unemployment, 1 = at least one parent in unemployment).

Statistics

In order to investigate the relationship between exposure to unemployment and mental health over the life course we need to use data longitudinally as repeated measures. We used a repeated-measures linear mixed models approach with random intercepts. Linear mixed models is an extension of the General Linear Model (GLM) that allows error terms and random effects to have correlated variability. The repeated measures mean that the model analyses within-subject effects of exposure to unemployment on repeated mental health observations (the first pre-exposure at age 16 years and the second post-exposure), and the random intercept assumes that individuals have different intercepts. In the table three models are presented. The first is an empty model where no variables have been entered allowing the reader to see if the entered variables improves the model, in the second the exposure variables are introduced and in the third the fixed control variables are added. All analyses were also tried using OLS regression where baseline mental health at 16 years was controlled for. Results from the OLS

regression models were substantively similar although both coefficients and standard errors were considerably higher.

Results

Descriptive statistics presented in Table 2 indicate that there are some selection effects. Non-exposed groups did, except for the first target age, have significantly lower PPI scores than exposed groups at age 16 years which indicates a negative health selection. The differences in PPI between the exposure groups at the target ages (21, 30 and 42 years) were however also significant and appear to be substantially larger indicating that there might also be some scarring effects.

Turning to the longitudinal analysis, Table 3 presents the mixed models results for three analyses of the relationship between exposure to unemployment during the three periods (age 18–21, 21–30 and 30–42 years) and PPI at ages 16, 21, 30 and 42 years.

First in Table 3, we can see that exposure to youth unemployment (age 18–21 years) was clearly associated with deteriorated mental health at age 21 years. We turn second to unemployment exposure during youth (age 18–21 years) and the intermittent period (age 21–30 years) and changes in PPI between ages 16 and 30 years. Here, respondents exposed to unemployment during only the youth period as well as respondents exposed to unemployment during only the intermittent period, were significantly worse off than respondents not exposed to unemployment during either period. The group that suffered exposure to both during the youth period and the intermittent period did however stand out, having much worse mental health development during the period.

Finally, Table 3 looks at unemployment exposure during all three periods (ages 18–21, 21–30 and 30–42 years) and PPI development between age 16 and 42 years. The table shows that exposure to unemployment during only the youth period was still at age 42 years significantly connected with worse PPI development than for those not exposed. The groups exposed to unemployment during only the intermittent period or only the final period, however, did not differ significantly from those not exposed. Turning to those with unemployment exposure during more than one period, we however find significant effects. Those with exposure to two periods of unemployment clearly had worse mental health development than those not exposed while the group with exposed to unemployment during all three periods appeared worst off.

Discussion

This study has attempted to expand the knowledge on long-term relationships between youth unemployment, as well as that of later unemployment experiences and mental health. Experiences of

Table 3 Mixed models (repeated measures) PPI (between ages 16–21, 16–30 and 16–42 years) in relation to different kinds of unemployment exposure during these periods

	Model 1 ^a B (95% CI)	Model 2 B (95% CI)	Model 3 ^b B (95% CI)
PPI between ages 16 and 21 years			
Unemployment exposure 16–21 years (none ref.)			
Exposure at age 18–21 years.		0.25*** (0.09 to 0.41)	0.21** (0.05 to 0.37)
Intercept		4.42 (4.36 to 4.49)	4.78 (4.63 to 4.93)
Variance at age 16 years (and SE)	1.28 (0.08)	1.30 (0.08)	1.26 (0.08)
Variance at age 21 years (and SE)	1.33 (0.08)	1.32 (0.08)	1.34 (0.08)
Variance at individual level (and SE)	0.60 (0.06)	0.57 (0.06)	0.55 (0.06)
–2LL	6897	6891	6854
PPI between ages 16 and 30 years			
Unemployment exposure at age 16–30 years (none ref.)			
Exposure at age 18–21 years only		0.30*** (0.16 to 0.44)	0.29*** (0.14 to 0.42)
Exposure at age 21–30 years only		0.32* (0.07 to 0.58)	0.34** (0.09 to 0.59)
Exposure both at ages 18–21 and 21–30 years		0.99*** (0.74 to 1.23)	0.97*** (0.72 to 1.21)
Intercept		4.19 (4.07 to 4.30)	4.51 (4.32 to 4.69)
Variance age at 16 years (and SE)	1.29 (0.09)	1.32 (0.09)	1.28 (0.09)
Variance age at 30 years (and SE)	1.58 (0.10)	1.55 (0.10)	1.56 (0.10)
Variance individual level (and SE)	0.59 (0.07)	0.55 (0.07)	0.53 (0.07)
–2LL	6855	6844	6808
PPI between ages 16 and 42 years			
Unemployment exposure at age 16–42 years (none ref.)			
Exposure at age 18–21 years only		0.31* (0.04 to 0.58)	0.28* (0.00 to 0.53)
Exposure at age 21–30 years only		0.15 (–0.21 to 0.51)	0.17 (–0.19 to 0.53)
Exposure at age 30–42 years only		0.27 (–0.16 to 0.71)	0.26 (–0.17 to 0.69)
Exposure to two periods		0.65*** (0.36 to 0.94)	0.63*** (0.34 to 0.91)
Exposure to all three periods		1.23*** (0.79 to 1.67)	1.28*** (0.85 to 1.72)
Intercept		4.49 (4.41 to 4.57)	4.78 (4.66 to 4.89)
Variance age at age 16 years (and SE)	1.31 (0.10)	1.34 (0.10)	1.31 (0.10)
Variance age at age 42 years (and SE)	2.74 (0.14)	2.63 (0.14)	2.64 (0.14)
Variance individual level (and SE)	0.59 (0.08)	0.54 (0.08)	0.48 (0.08)
–2LL	7413	7372	7309

Significance levels *** $P < 0.001$, ** $P < 0.01$, * $P < 0.05$

a: Empty model.

b: Model includes the fixed covariates: gender, parental class and parents in employment.

youth unemployment were clearly shown to be connected with deteriorating mental health at all three target ages, 21, 30 and 42 years. Later singular unemployment experiences did not appear to have the same long-term negative connotations as youth unemployment. Unemployment experiences between ages 21 and 30 years were connected with poorer mental health at age 30 years, but not at age 42 years, while unemployment experiences between ages 30 and 42 years were not significantly connected with poorer mental health at age 42 years. There were, however, strong connections between accumulation of unemployment experiences and mental health at various ages where respondents with unemployment experiences during two, and even more so three, of the periods were substantially worse off at ages 30 and 42 years than all other groups.

The study supports previous findings suggesting long-term mental health scarring of unemployment experiences. The mental health scarring of youth unemployment appears to be of particular salience, whereas singular later exposures do not seem to be as harmful. This would fit an understanding of youth as a sensitive period where exposure to unemployment risk leading to permanent mental health scarring while later exposure might be connected to delayed mental health recovery but not permanent scarring. This finding is interesting as youth is a period when high labour market instability is to be expected and it raises questions about if this instability might be more harmful than what is usually assumed.

Even if individual adult unemployment experiences did not seem to be connected with permanent mental health scarring, they did appear to have consequences if respondents had previous unemployment experiences. The stepwise accumulation of poorer mental health in relation to double or triple exposure to unemployment indicates that unemployment events both during youth and

adulthood can be of importance for the long-term development of mental health during the life course.

From a life course epidemiological perspective there are two models for the relationship between socioeconomic conditions and future health that could be useful for understanding these findings: (i) the disadvantageous social conditions could transmit directly to later health through, in our case, the strain on the individual's psychobiological system leading to a mental health set point change or (ii) disadvantageous social conditions could accumulate over the life course.^{36,37} There has been substantial support for such life course transmission of health outcomes although the very mode of transmission can be methodologically difficult to differentiate.³⁸ It is also possible that the timing of exposure is of importance. Models focused on sensitive periods suggest that environmental exposure during vulnerable periods in life, such as youth, might have larger consequences than later exposure.³⁹

We cannot, from this study, draw conclusions in relation to the mechanisms behind the mental health scarring unemployment found. It is possible that the results are related to set point changes in mental health connected to the unemployment experiences. The findings of long-term scarring of youth unemployment could perhaps support such assumptions. These youth years where many first enter the labour market is a sensitive period for the development of identity and socialization into adulthood^{25,40} and could very well be connected with such set point changes. The lack of long-term mental health effects of singular adult unemployment experiences and the apparent accumulation of poor mental health in relation to multiple exposures, would however fit very well with an accumulation of disadvantaged social conditions connected with poorer mental health. The socioeconomic scarring of unemployment shown in economic and

sociological research might mean that those exposed to youth unemployment have higher risks of relatively disadvantaged positions over the life course, while multiple exposures might be connected with a negative socioeconomic trajectory.

Strengths and limitations

The main strengths of the study are the very long follow-up time with five surveys over a 27-year period and the extremely low attrition with a 93.9% final retention rate. One possible limitation is the geographical basis of the sample, a medium-sized industrial town in the north of Sweden. With regard to socio-demographic and socioeconomic factors as well as health status and health behaviour, the cohort is however comparable with the cohort on a national level.²⁹ Other limitations are related to the exposure and outcome variables. The exposure variables were based on self-reported unemployment experiences over extended periods of time where recollections could be less than perfect. This problem is somewhat mitigated by the use of recollections of any long term unemployment experiences during the period rather than looking at timing or exact lengths of exposure. The 6-month cut off used may also lead to an underestimation of the relationship in general as shorter unemployment spells are not counted. The outcome variable, PPI, was based on only three available relevant questions and do not have ideal properties for the analyses performed. It would here have been better to have used to properly developed and validated psychological scales. The results using PPI do however appear to be robust as similar analyses of the individual items as well as log transformations and dichotomizations of PPI produced the same substantive results.

Conclusions

The existence of long-term mental health scarring of unemployment means that public health policy severely underestimates the mental health costs of unemployment as well as the true costs in terms of health of the current employment situation.

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Conflicts of interest: None declared.

Key points

- While long-term socioeconomic consequences of unemployment experiences are well described, little research has looked at possible long-term mental health consequences, i.e. mental health scarring, during the life course.
- Exposure to youth unemployment (between ages 18 and 21 years) was shown to be connected with poorer mental health not only at age 21 years, but also at ages 30 and 42 years.
- Later singular unemployment experiences did not appear to have the same long-term negative correlation with poorer mental health.
- There was, however, an accumulation in poorer mental health among respondents who had multiple unemployment experiences.
- The implication of the study is that public health policy underestimates the mental health costs of unemployment in general as well as the true health costs of the current European employment crisis.

References

- 1 Winefield AH. Unemployment, underemployment, occupational stress and psychological well-being. *Aust J Manage* 2002;27:137–48.
- 2 McKee-Ryan F, Song Z, Wanberg RC, Kinicki AJ. Psychological and physical well-being during unemployment: A meta-analytic study. *J Appl Psychol* 2005;90:53–76.
- 3 Paul KI, Moser K. Unemployment impairs mental health. Meta-analyses. *J Vocat Behav* 2009;74:264–82.
- 4 Kessler RC, Turner BJ, House JS. Unemployment, reemployment, and emotional functioning in a community sample. *Am Sociol Rev* 1989;54:648–657.
- 5 Winefield AH, Winefield HR, Tiggemann M, Goldney RD. A longitudinal study of the psychological effects of unemployment and unsatisfactory employment on young adults. *J Appl Psychol* 1991;76:424–31.
- 6 Patterson M. Long-term unemployment amongst adolescents: a longitudinal study. *J Adolescence* 1997;20:261–80.
- 7 Korpi T. Is utility related to employment status? Employment, unemployment, labour market policies and subjective well-being among Swedish youth. *Labour Econ* 1997;4:124–47.
- 8 Strandh M. Varying unemployment experiences? The economy and mental well-being. Doctoral Thesis, the Department of Sociology, Umeå University, Umeå, Sweden, 2000:11.
- 9 Clark AE. Unemployment as a social norm: psychological evidence from panel data. *Labour Econ* 2003;21:323–51.
- 10 Dockery AM. The happiness of young Australians: Empirical evidence of the role of labour market experience. *Econ Rec* 2005;81:322–35.
- 11 Hald Andersen S. Dealing with unemployment: Program effects on psychological and labour market outcomes, Copenhagen, Denmark: Doctoral Theses at the Department of Sociology, University of Copenhagen, 2009.
- 12 Headey B, Wearing A. *Understanding Happiness: A Theory of Subjective Well-being*. Melbourne, Australia: Longman Cheshire, 1992.
- 13 Diener E, Suh EM, Lucas RE, Smith HE. Subjective wellbeing: Three decades of progress. *Psychol Bull* 1999;125:276–302.
- 14 Goldsmith AH, Veum JR, Darity W. The psychological impact of unemployment and joblessness. *J Socio-Econ* 1996;25:33–358.
- 15 Clark AE, Georgellis Y, Sanfey P. Scarring: The psychological impact of past unemployment. *Economica* 2001;68:221–41.
- 16 Hammarström A, Janlert U. Nervous and depressive symptoms in a longitudinal study of youth unemployment—selection or exposure? *J Adolescence* 1997;20:293–305.
- 17 Blanchard OJ, Diamond P. Ranking, unemployment duration, and wages. *Rev Econ Stud* 1994;61:417–34.
- 18 Kangas O, Palme J. Does social policy matter? Poverty cycles in OECD countries. *Int J Health Serv* 2000;30:335–52.
- 19 Halleröd B, Larsson D, Gordon D, Ritakallio V.M. Relative deprivation: A comparative analysis of Britain, Finland and Sweden. *J Eur Soc Policy* 2006;16:328–45.
- 20 Layte R, Levin H, Hendrickx J, Bison I. Unemployment and cumulative disadvantage in the labour market. In: Gallie D, Paugam S, editors. *Welfare Regimes and the Experience of Unemployment in Europe*. Oxford, UK: Oxford University Press, 2000:153–74.
- 21 Gangl M. Welfare states and the scar effects of unemployment: A comparative analysis of the United States and West Germany. *Am J Sociol* 2004;109:1319–64.
- 22 Björklund A. *Studies in the Dynamics of Unemployment*. Stockholm, Sweden: Economic Research institute, Stockholm School of Economics, 1981.
- 23 Bender S, Dustmann C, Margolis D, Meghir C. Worker displacement in France and Germany. Working paper no 99/14 (London, UK: Institute for fiscal studies) 1999.
- 24 Gregg P, Tominey E. The wage scar from male youth unemployment. *Labour Econ*; 12:487–509.
- 25 Hammarström A, Janlert U. Early unemployment can contribute to adult health problems: results from a longitudinal study of school leavers. *J Epidemiol Commun H* 2002;56:624–30.
- 26 Wadsworth MEJ, Montgomery SM, Bartley MJ. The persisting effect of unemployment on health and social well-being in men early in working life. *Soc Sci Med* 1999;48:1491–9.

- 27 Mossakowski KN. The influence of past unemployment duration on symptoms of depression among young women and men in the United States. *Am J Public Health* 2009;99:1826–32.
- 28 Lucas RE, Clark AE, Georgellis Y, Diener E. Unemployment alters the set point for life satisfaction. *Psychol Sci* 2004;15:8–13.
- 29 Hammarström A, Janlert U. Cohort Profile: The Northern Swedish Cohort. *Int J Epidemiol* 2012;41:1545–52.
- 30 Kringlen E, Fredriksson I, Kebabian L. *Psychiatric pathology and therapeutic approach in health care work*. Stockholm: Sweden: Esselte studium, 1980.
- 31 Laavik NJ. *Mental Health Among Young People*. Oslo: Universitetsforlaget, 1976.
- 32 Thorslund M, Wärneryd B. Methodological research in the Swedish surveys of living conditions. Problems of measurement and data collection. *Soc Indic Res* 1985;116:77–95.
- 33 Hammarström A, Gustafsson PE, Strandh M, et al. It's no surprise! Women and men in the Northern Swedish Cohort are equally hit by the health consequences of unemployment. *Scand J Pub Health* 2011;39:187–93.
- 34 Strandh M, Hammarström A, Nilsson K, et al. Unemployment, gender and mental health – the role of the gender regime. *Sociol Health Ill* 2013;35:649–65.
- 35 Statistics Sweden. *Swedish Socio-Economic Classification*. Stockholm, Sweden: Statistics Sweden, 1983.
- 36 Lynch J, Davey Smith GD. A life course approach to chronic disease epidemiology. *Annu Rev Publ Health* 2005;26:1–35.
- 37 Pollitt RA, Rose KM, Kaufman JS. Evaluating the evidence for models of life course socioeconomic factors and cardiovascular outcomes: a systematic review. *BMC Public Health* 2005;5:7.
- 38 Hallqvist J, Luch J, Bartley M, et al. Can we disentangle life course processes of accumulation, critical period and social mobility? An analysis of disadvantaged socio-economic positions and myocardial infarction in the Stockholm Heart Epidemiology Program. *Soc Sci Med* 2004;58:1555–62.
- 39 Kuh D, Ben-Shlomo Y, Lynch J, et al. Life course epidemiology. *J Epidemiol Commun H* 2003;57:778–83.
- 40 Winefield AH, Tiggemann M, Winefield H, Goldney RD. *Growing Up with Unemployment. A Longitudinal Study of its Psychological Impact*. London, UK: Routledge, 1993.

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Employment, psychosocial work environment and well-being among migrant and native physicians in Finnish health care

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Background: Although international migration of physicians is increasing, research information on their adjustment to working in a new country is scarce. This study examined the differences in employment, perceptions of psychosocial work environment and well-being between migrant and native physicians in Finland. **Methods:** A cross-sectional survey was sent to a random sample of physicians in Finland ($N=7000$) and additionally to all foreign-born physicians licensed to practice in Finland ($N=1292$). The final response rates were 56% ($n=3646$) among native Finns and 43% ($n=553$) among foreign-born physicians. **Results:** Migrant physicians worked more often in primary care and on-call services and less often in leadership positions than native Finns. They more often experienced lack of professional support and lower work-related well-being compared with native Finns. Those migrant physicians who had lived for a shorter time in Finland perceived less stress related to electronic patient records systems and higher organizational justice compared with native physicians or those foreign physicians who had migrated earlier. **Conclusions:** Foreign-born physicians are more often employed in the primary care sector, where there are most difficulties in recruiting from the native workforce in Finland. Attention should be paid to enhancing equitable career opportunities and well-being among foreign-born physicians working in Finnish health care. Although migrant physicians are relatively well adjusted to Finnish health care in terms of perceptions of psychosocial work environment, their lower well-being calls for attention.

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Introduction

Many countries face a challenge of physician shortages¹ and rely increasingly on a migrant workforce to fill the shortages in health care.² At the beginning of the 21st century, 18% of physicians in the Organisation for Economic Co-operation and Development (OECD) countries were foreign born.³ In the 2000s, the trend has continued, although the rise has stabilized in some countries.^{4–6} Finland still has a low rate of migrant health care workers. The proportion is increasing, and during 2000–2007, the

number of migrant health professionals in Finland increased by 60%.⁷ In 2010, 7.6% of physicians and 2.7% of nurses in Finland were of foreign origin.⁸

The rate of retirement among the aging workforce will result in further shortages of an estimated >20 000 employees in Finnish social and health care by 2025.⁹ Already 6% of physician vacancies in public health care were unfilled in 2012, and many vacancies were occupied by temporary replacements or by physicians from employment agencies.¹⁰ Poor working conditions in public health care¹¹ are suggested to be at least partially responsible for the