

Social inequalities in childhood are predictors of unemployment in early adulthood

Flemming Lander¹, Kurt Rasmussen¹ & Jens Tølbøll Mortensen²

ABSTRACT

INTRODUCTION: The aim of the present study was to establish if social inequalities in early childhood, particularly living in a socially and economically deprived neighbourhood, are predictive of later unemployment.

MATERIAL AND METHODS: A cohort was established in 1987. It consists of 8-9 year-old children living in a socially deprived suburb who were followed in national registers for all categories of welfare benefits. The follow-up covered the period when participants were 21-27 years of age. A control group with the same age and gender distribution who were living in a neighbouring, relatively privileged middle class district were also followed for the purpose of comparison.

RESULTS: The annual unemployment rate during the seven years of follow-up was significantly higher in the deprived neighbourhood group than in the middle class neighbourhood group, whereas long-term unemployment lasting more than two years did not differ significantly between the groups. Childhood background including a mother receiving social benefit was an independent factor associated with increased risk of later unemployment, whereas gender and single parenthood were not.

CONCLUSION: The present findings suggest that socioeconomic disadvantage during childhood substantially increases the risk of unemployment in early adulthood, even during a follow-up period in the first decade of the 21st century when employment opportunities in Denmark were excellent.

FUNDING: not relevant

TRIAL REGISTRATION: not relevant.

In Denmark during the 1960s and 1970s, many larger inner city neighbourhoods with cheap rented apartments, inhabited mainly by working class people, were demolished. The inhabitants moved to modern suburban neighbourhoods supported by public funding with buildings of high building standards. The same period was characterized by an economic boom and those who could afford it moved instead into self-owned housing. This development created a situation where, from the very outset, many new suburban neighbourhoods were mainly inhabited by relatively weak residual groups characterized by a lack of psychosocial resources, including long-term unemployed people and people depending on welfare benefits and, initially, a limited number of immigrants [1].

The Black Report in 1980 revealed substantial differences in health related to socioeconomic status (SES) in the UK [2]. The following public and scientific debate revitalized research in social inequalities in health, also in Denmark. Since then, a substantial number of studies have documented the relationship between parental social resources and children's health problems in adult life [3, 4]. A study from the late 1980s focused on health inequalities between children in a newly built Danish suburb with a high proportion of residents on welfare benefits and children from a neighbouring district consisting of middle income families living predominantly in private houses [5]. The specific background for this study was a growing public concern about child well-being and mental development following reports by social workers, employees from kindergartens and school teachers working in the deprived neighbourhood. However, the study showed that – despite obvious differences in SES – the level of health of the 8-9 year-old children living in the deprived neighbourhood was comparable with that of the children from more privileged areas [5]. Only vaccination coverage and dental care were found to be slightly poorer in deprived neighbourhood children along with hospital admissions due to infections, which were twice as frequent. No differences were observed concerning other diseases. Nor were there any differences regarding the children's height, weight or psychomotor status. This population has been followed up in the present study with the aim of study-

ORIGINAL ARTICLE

1) Occupational Medicine, Herning Regional Hospital
2) Social Medicine, Aarhus University Hospital, Aalborg Hospital

Dan Med J
2012;59(3):A4394

A building in Vollsmose, Odense.



ing if these obvious social inequalities in early childhood, particularly living in a socially and economically deprived neighbourhood, are predictive of unemployment during early adulthood.

MATERIAL AND METHODS

Vollsmose is a geographically well-defined suburb of Odense, the third largest city in Denmark. The suburb covers 2 km² and consists of publicly subsidized housing of a good standard. It was built during the sixties and seventies. In 1985, the area contained 3,712 apartments with approx. 8,500 inhabitants. A survey performed by the local municipality from the same year showed that the income per inhabitant was about half that of the general population in the municipality as a whole and significantly more people were dependent on welfare benefit payments [5]. Within a Scandinavian context, the inhabitants of Vollsmose were not poor in a material sense, but many families were affected by psychosocial

factors, such as emotional problems and low levels of psychological and educational resources. At the time, Vollsmose was generally seen as one of the most socially deprived neighbourhoods in Denmark [5].

The study was a register-based follow-up study of a child cohort identified in 1987 and followed from 1999 through 2006. The study groups consist of 108 children born in 1978 who lived in the deprived neighbourhood of Vollsmose and 152 children from a nearby middle-class district born in the same year. The children were identified through the regional schools. The sample was assumed to be almost complete because of mandatory schooling provisions. Through the Central Population Register Number (CPRN) of the children – a 10-digit unique identifier attributed to all Danish citizens since 1968 – socioeconomic and family-related data were obtained from the records of the local municipal authorities. **Table 1** shows social characteristics of the children and their families from the two districts. In the deprived neighbourhood, significantly more children lived with a single parent, with a mother on social benefit or disability pension, and had been registered by the authorities due to cases of abuse or violence in the family. The number of boys and the number of children of immigrant parents were also slightly higher in the deprived neighbourhood than in the more privileged district.

Details concerning employment between the ages of 21 and 27 years were collected for all participants. Information on unemployment before the age 21 years was not used because a high proportion of the cohort was assumed to be in full time education up to that age and therefore not at risk of unemployment. Employment data were obtained from the Public Register of Transfer Payments (DREAM) in which individual records are linked on the basis of the CPRN. The DREAM database operates with more than 100 different codes falling into three main groups: self-supporting, labour-market-related benefits and health-related benefits (**Table 2**). The three most frequently used welfare payments during the observation period were unemployment benefit, cash benefit and sickness benefit. Four per cent in each study group had been awarded a disability pension during the follow-up period.

Unemployment status was derived from the main grouping and includes individuals who had received labour-market-related benefits and/or health-related benefits during the seven-year period. For every individual, the number of weeks per year with unemployment was counted and the unemployment rate for each year calculated. Long-term unemployment was defined as labour-market-related or health-related welfare benefit payments received for more than two years during the seven-year observation period.

Differences in annual unemployment rate during

TABLE 1

Characteristics among children who lived in the deprived neighbourhood and in the middle class district in 1987.

Characteristics	Deprived neighbourhood, n (%) (n = 108)	Middle class district, n (%) (n = 152)	p value
Single parenthood	65 (60.2)	45 (29.8)	< 0.001
Mother received social benefit payment	41 (38.0)	8 (18.4)	< 0.001
Social family intervention	15 (14.0)	10 (6.6)	< 0.05
Boys	55 (50.9)	68 (44.8)	> 0.05
Family from western country	94 (87.0)	144 (94.8)	> 0.05

TABLE 2

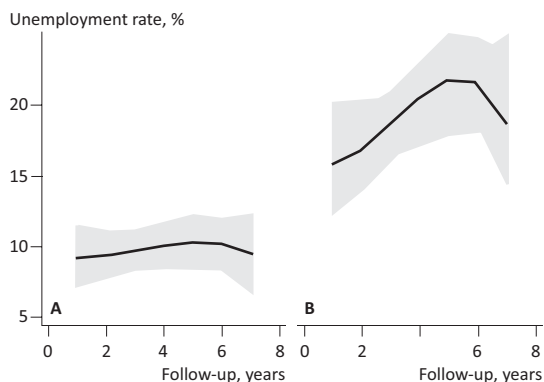
Selected codes for transfer income included in the Public Register of Transfer Payments (DREAM) database and derived grouping. n is the number of individuals who had received the various types of payments during the seven-year follow-up period.

Code	Transfer income	Main grouping	n
No entry	No transfer income	Self-supporting	251
651-662	National study grants	Self-supporting	121
881	Maternity pay	Self-supporting	44
411-414	Leave-of-absence schemes	Self-supporting	44
111-123	Unemployment	Labour market-related benefit	110
211-298	Wage subsidy	Labour market-related benefit	36
521	Adult apprentice	Labour market-related benefit	6
731-739	Cash benefit	Labour market-related benefit	102
891 -893	Sickness benefit	Health-related benefit	85
751-759	Wage subsidy (rehabilitation)	Health-related benefit	8
791-92	Rehabilitation benefit	Health-related benefit	17
771-779	Flex-job ^a	Health-related benefit	1
741-749	Unemployed after flex-job	Health-related benefit	0
793	Disability pension	Health-related benefit	1
761-769	Light job ^a	Health-related benefit	1

a) Mainly part-time work.


FIGURE 1

Annual unemployment rate during seven years among young adults who had lived in one of the two neighbourhoods as a child^a. **A.** Middle class neighbourhood. **B.** Deprived neighbourhood. The values are mean with 95% confidence interval.



a) Multilevel Poisson statistics. Differences between neighbourhoods, $p < 0.00001$ adjusted for the three main individual childhood confounders. Test for trend $p > 0.05$.

the seven years was tested by multilevel Poisson regression analysis involving dichotomised independent variables from the late 1980s and years as exposure. The relationships between long-term unemployment and childhood socio-demographic data were analysed by multilevel logistic regression analysis. Level one in both models consisted of the following variables during childhood: Mother's employment, parenthood and gender. Level two consisted of neighbourhood affiliation. The level of significance was set to 5%. All analyses were conducted using Stata11 software.

Trial registration: not relevant.

RESULTS

Figure 1 shows the estimated fitted annual unemployment rate regression line with a 95% confidence area for the deprived neighbourhood group and the control group during the seven years of follow-up which was counted as from the end of the week participants turned 21 years old. During the whole period, the unemployment rates were consistently more than twice as high in the deprived neighbourhood group as in the other group, a statistically significant difference when adjusted for individual childhood confounders. Furthermore, the variable "mother receiving social benefits" was also significantly associated with annual unemployment. Among the young adults who had been living in the deprived neighbourhood, the unemployment rate increased annually during the first four years, but then decreased, whereas the rate remained steady at around 9% in the comparison group.

In the logistic regression model (**Table 3**), living in different neighbourhoods during early childhood did not predict a future higher risk of long-term unemployment. The only individual variable found to be significantly associated with long-term unemployment was having a mother receiving social benefits. Single parenthood and gender were not related to long-term unemployment.

DISCUSSION

During the seven years of observation in the beginning of the new millennium, the unemployment rate was consistently more than twice as high in young adults who grew up in a deprived neighbourhood than in young adults from a middle class district, and the difference between groups remained significant after adjustment for three individual childhood SES characteristics. However, for long-term unemployment – i.e. a total of more than two years of unemployment – the difference between the groups disappeared when adjusting for childhood SES. In the present study, one individual childhood factor seemed to be an important predictor of both the observed annual level of unemployment and of long-term unemployment: having a mother receiving social benefits. Neither childhood with a single mother nor gender was significantly associated with future unemployment. Information about ethnicity and family contact with the social service department due to issues of child well-being are obviously important SES measures that may influence future employment status [6]. However, these measures were not included in the analyses because of small numbers in both study groups.

Socioeconomic disadvantage during childhood is highly associated with future morbidity, mortality, mental health and labour market attachment [1, 6]. Especially parents' unemployment, which in many high-income countries reflects relative poverty, is a major risk factor that has strong impact on childhood and adulthood adversities [6, 7]. In some childhood studies, boys who had adverse childhood experiences were more likely to engage in antisocial behaviour as young adults


TABLE 3

Predictors in childhood. Logistic regression coefficients with standard error for association between family- and neighbourhood-related conditions in childhood and risk of long-term unemployment during early adulthood (n = 260).

Variable	Coefficient	Standard error	p value
Intercept	-1.519	0.326	0.000
Neighbourhood (referent middle class neighbourhood)	0.250	0.216	0.156
<i>Individual adult characteristics</i>			
Marital status (referent single parenthood)	0.427	0.314	0.174
Mother received social benefit payment	0.955	0.324	0.003
Gender (referent boys)	0.340	0.290	0.241

than girls with similar experiences [8]. Also, a childhood with a single mother or an experience of parental divorce has been found to be indicators of distress in childhood persisting into adulthood [9]. Such adversities may lead to reduced labour markets attachment in the future. In our study, there seems to be indications that growing up in a deprived neighbourhood represents an independent risk of future unemployment. We are well aware that even if a multilevel analytical approach takes into account the similarity of subjects within a neighbourhood, some part of the estimated effect of neighbourhood disadvantage in the current models may be attributable to individual level effects as families with certain unmeasured characteristics may be more likely to reside in disadvantaged or advantaged neighbourhoods [1, 10]. Nevertheless, our finding is in accordance with recent studies from high-income countries establishing a neighbourhood effect on the course of education during childhood and on the future course of life [1, 11-14].

Taking into account the excellent Danish employment opportunities during the follow-up period, our findings might indicate that at least a minority of young adults, especially from the deprived neighbourhood, might experience low human resources resulting in a reduced ability to meet job market requirements. A recent study from Australia found that young unemployed people studied in a period of low national unemployment reported poorer health in all areas when compared with age-matched norms [15]. Previous studies had revealed that such pronounced inequalities in youth unemployment rate in general might be a consequence of a direct health selection effect; that is, poorer health itself increases the risk of both initial job loss and the duration of subsequent unemployment [15-17].

A strength of this study is the very reliable register information on weekly benefit payments compared with other sources of information, e.g. self-reported data [18]. When the study population was established in 1987, all children of the specific age group were included in the two districts, and during the follow-up all participants could be identified in the national personal identification register. Thus, selection bias due to dropout in the follow-up period does not exist. The main limitation of the study is that we had no information on the children's mental resources, e.g. intelligence, or information concerning the social processes from early childhood to adolescence, e.g. problems related to children's health and well-being, or health-related behaviour and performance. These personal characteristics and specific developmental factors may have profound effects on the transition from childhood to early adulthood [12, 19, 20]. Especially intelligence seems to be strongly associated with the ability to meet to job market requirements

in early adulthood [19]. Another limitation is that we do not know how long the children had lived in the districts. For this reason, we have no information on the duration of neighbourhood "exposure".

CONCLUSION

In conclusion, we found that the risk of unemployment during early adulthood is clearly associated with a combination of unfavourable family-related socioeconomic factors during childhood and probably also with neighbourhood disadvantage. Public health interventions should focus on deprived neighbourhoods in order to prevent early marginalisation. Methods to identify threatened children and families and support their social engagement are needed.

CORRESPONDENCE: *Flemming Lander*, Lahngade 46, 5000 Odense C, Denmark. E-mail: flemming.lander@dadlnet.dk

ACCEPTED: 3 January 2012

CONFLICTS OF INTEREST: none

LITERATURE

1. Diderichsen F, Andersen I, Manuel C et al. Health Inequality – determinants and policies. Copenhagen: National Board of Health, 2011.
2. Townsend P, Davidson N. Inequalities in health (the Black Report). Harmondsworth: Penguin Books, 1989.
3. Smith GD, Hart C, Hole D. Adverse socioeconomic conditions in childhood and cause specific adult mortality: prospective observational study. *BMJ* 1998;316:1631-5.
4. Osler M, Madsen M, Andersen AMN et al. Do childhood and adult socioeconomic circumstances influence health and physical function in middle-age? *Soc Sci Med* 2009;68:1425-31.
5. Baelum J, Lander F, Viskum B et al. Social and health inequality in an area of community housing in Odense. *Ugeskr Læger* 1991;153:1358-60.
6. Bosma H, van de Mheen HD, Mackenbach JP. Social class in childhood and general health in adulthood: questionnaire study of contribution of psychological attributes. *BMJ* 1999;318:18-22.
7. Buchanan A, Ten BJ, Flouri E. Parental background, social disadvantage, public "care," and psychological problems in adolescence and adulthood. *J Am Acad Child Adolesc Psychiatry* 2000;39:1415-23.
8. Matthews S, Manor O, Power C. Social inequalities in health: are there gender differences? *Soc Sci Med* 1999;48:49-60.
9. Huurre T, Junkkari H, Aro H. Long-term psychosocial effects of parental divorce: a follow-up study from adolescence to adulthood. *Eur Arch Psychiatry Clin Neurosci* 2006;256:256-63.
10. Leventhal T, Brooks-Gunn J. The neighborhoods they live in: the effects of neighborhood residence on child and adolescent outcomes. *Psychol Bull* 2000;126:309-37.
11. Aneshensel CS, Sucoff CA. The neighborhood context of adolescent mental health. *J Health Soc Behav* 1996;37:293-310.
12. Ingoldsby EM, Shaw DS. Neighborhood contextual factors and early-starting antisocial pathways. *Clin Child Fam Psychol Rev* 2002;5:21-55.
13. Friedrichs J, Galster G, Musterd S. Neighbourhood effects on social opportunities: The European and American research and policy context. *Housing Stud* 2003;18:797-806.
14. Andersson R, Musterd S. What scale matters? Exploring the relationships between individuals' social position, neighbourhood context and the scale of neighbourhood. *Human Geography* 2010;92:23-43.
15. Scanlan JN, Bundy AC. Is the health of young unemployed Australians worse in times of low unemployment? *Aust N Z J Pub Health* 2009;33:79-82.
16. Sanford MN, Mullen PE. Health consequences of youth unemployment. *Aust N Z J Psychiatry* 1985;19:427-32.
17. Montgomery SM, Bartley MJ, Cook DG et al. Health and social precursors of unemployment in young men in Great Britain. *J Epidemiol Com Health* 1996;50:415-22.
18. Hjollund NH, Larsen FB, Andersen JH. Register-based follow-up of social benefits and other transfer payments: accuracy and degree of completeness in a Danish interdepartmental administrative database compared with a population-based survey. *Scand J Pub Health* 2007;35:497-502.
19. Fergusson DM, Horwood LJ, Ridder EM. Show me the child at seven II: Childhood intelligence and later outcomes in adolescence and young adulthood. *J Child Psychol Psychiatry* 2005;46:850-8.
20. Fergusson DM, Horwood LJ, Ridder EM. Show me the child at seven: the consequences of conduct problems in childhood for psychosocial functioning in adulthood. *J Child Psychol Psychiatry* 2005;46:837-49.