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Long-term NEET among young adults with experience of out-of-home care: A comparative study of three Nordic countries

Berlin M., Kääriälä A., Lausten M., Andersson G., Brännström L. Long-term NEET among young adults with experience of out-of-home care: A comparative study of three Nordic countries

Previous research suggests that young adults from out-of-home care (OHC) are at high risk of low education and unemployment. However, there are no studies on their risk of long-term NEET (Not in Employment, Education or Training). This study compared the risk of NEET at age 21–23 among OHC youth across Denmark, Finland and Sweden, using register data for an entire birth cohort born in 1987. The Nordic countries share many features, but there are differences in the provision of after-care support and in the linkage between the educational system and the labour market. The results show that about a fourth in Denmark and Sweden and a third in Finland were NEET, suggesting that the welfare systems were not able to compensate for the OHC youth's childhood disadvantages. To a significant extent, the excess risk of NEET was attributed to poor school performance. Implications for research, policy and practice are discussed.

**Marie Berlin^{1,*}, Antti Kääriälä^{2,3},
Mette Lausten⁴, Gunnar Andersson¹,
Lars Brännström⁵**

¹ Department of Sociology, Stockholm University, Stockholm, Sweden

² Social Policy Research Unit, National Institute for Health and Welfare (THL), Helsinki, Finland

³ Faculty of Social Sciences, University of Helsinki, Helsinki, Finland

⁴ VIVE Children and Education, VIVE – The Danish Center for Social Science Research, Copenhagen, Denmark

⁵ Department of Social Work, Stockholm University, Stockholm, Sweden

Key words: NEET, employment, education, school-to-work transition, child welfare, out-of-home care, comparative study, Nordic countries

Marie Berlin, National Board of Health and Welfare, 106 30 Stockholm, Sweden

E-mail: marie.berlin@socialstyrelsen.se

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The school-to-work transition takes place at a critical developmental stage in young people's life, the emerging adulthood between adolescence and adulthood (Arnett, 2000). This is a period of identity exploration, and of risks and opportunities associated with adult privileges and responsibilities (Greeson, 2013). Due to high rates of school dropout, youth unemployment, and young people who are NEET (Not in Employment, Education or Training), youths' transition into adulthood and self-sufficiency has become a major policy issue in recent decades (e.g., Eurofound, 2012; OECD, 2018a, 2018b; Tamesberger & Bacher, 2014; Vancea & Utzet, 2018). However, there are only a few studies on the school-to-work transition and the risk of NEET among young adults from out-of-home care (OHC). This is due in part to a lack of longitudinal data that capture all three dimensions: OHC experience, education, workforce participation. The Nordic countries are well equipped in this matter through their population level data. Although the Nordic countries are similar in many ways there are also differences, for example in how the child welfare systems provide after-care support and in the linkage between the educational system and the labour market. In this study, we investigated young adults' risk of being NEET in relation to OHC

experience, school performance and socioeconomic factors in their upbringing.

The school-to-work transition

The paths and timing of the school-to-work transition differ between individuals and across countries, and do not necessarily follow a straight path. Many young adults switch between education and work, and have periods of inactivity from education and employment, when they engage in activities outside the common transition paths (Billari & Liefbroer, 2010; Buchmann & Kriesi, 2011; Schoon & Lyons-Amos, 2016; Settersten & Ray, 2010). NEET is a common measure in comparative studies of youth inactivity during the transition phase, as it covers the many and varied paths to work establishment that are available in different countries. Previous studies have found that problems associated with being NEET are often complex (Albæk et al., 2015). In addition, long-term NEET in young adulthood is closely linked to the risk of social exclusion in future life (Bäckman & Nilsson, 2016). In the general population, early school leaving and school dropout have been found to be major determinants for unemployment and marginalisation in adulthood, and even more so in today's society due to an

increased demand for higher education (Albæk et al., 2015; Bäckman, Jakobsen, Lorentzen, Österbacka, & Dahl, 2015).

It is well established that children from advantaged social backgrounds achieve higher levels of educational attainment and socioeconomic status in adulthood than do children from less advantaged social backgrounds (e.g., Breen & Goldthorpe, 2014; Hertz et al., 2007). The reason for OHC is often related to factors that are known to be strong intergenerational transmitters of future opportunities. In the Nordic and other countries, OHC is an intervention used by child welfare authorities to protect children and youth whose safety and welfare are at risk due to deficits in their home environment; or in the case of teenagers, usually their own disruptive behaviour (e.g., Gilbert, Parton, & Skivenes, 2011). A vast body of international research also shows that a substantial proportion of children in OHC have poor school performance, and continue to have low educational attainment as adults (e.g., Gypen, Vanderfaillie, De Maeyer, Belenger, & Van Holen, 2017; Trout, Hagaman, Casey, Reid, & Epstein, 2008). This is also the case in the Nordic countries, despite free education and low levels of educational tracking (e.g., Kääriälä & Hiilamo, 2017). Previous research suggests that poor school performance and low educational attainment are highly associated with the OHC population's excess risk of various adverse outcomes in young adulthood, for example substance abuse, criminality and long-term social assistance (e.g., Berlin, Vinnerljung, & Hjern, 2011; Forsman, Brännström, Vinnerljung, & Hjern, 2016). Evidence also suggests that the OHC population's disadvantage in the educational system continues into the labour market, as employment outcomes tend to be poor among young adults from OHC (Cameron et al., 2018; Cassarino-Perez, Crous, Goemans, Montserrat, & Castellà Sarriera, 2018; Font, Berger, Cancian, & Noyes, 2018; Hook & Courtney, 2011; Mendes, 2009; Stewart, Kumb, Barth, & Duncana, 2014).

Furthermore, the educational differentials in the general population appear to be increasing (OECD, 2018a), suggesting that youth from OHC may fall further behind (Socialstyrelsen, 2016). This is a troubling development for children in OHC, as there is reason to believe that low educational attainment inflicts a greater disadvantage when it comes to their future opportunities. In labour market segments where other qualifications than education are decisive, social networks and ascribed characteristics become more important, together with other qualifications such as having a driver's licence or early work experience (Breen & Jonsson, 2007). Studies from Europe and the United States show that having work experience from holiday jobs while still in school was an important

factor for progression towards work establishment after OHC (Arnau-Sabatés & Gilligan, 2015; Courtney et al., 2011; Stewart et al., 2014).

The development in childhood and adolescence is often an accumulative process, in which different factors are linked and enforce each other (Ferraro, Schafer, & Wilkinson, 2016). For youth from OHC, the school-to-work transition may be attributed to a range of pre-care, in-care and post-care factors, which are varied within the OHC population. For some, adverse childhood experiences in their early years may have caused long-term problems in their social functioning, relationships and economic participation (McEwen & McEwen, 2017; Pears, Kim, & Braun, 2018), while for those who first enter care in their teenage years, OHC is the result of a disadvantageous cycle which has already started (Vinnerljung & Andreassen, 2015). Support after OHC is also important for the transition into adulthood and self-sufficiency (e.g., Cameron et al., 2018; Mendes, 2009) because they often lack the resources and support from their birth family that general population peers typically have (Ejrnæs, Ejrnæs, & Frederiksen, 2011; Franzén, Vinnerljung, & Hjern, 2008; Greeson, 2013; Kestilä, Väisänen, Paananen, Heino, & Gissleret, 2012). Based on this knowledge, the aim of this study was twofold: to investigate (i) the relation between OHC and long-term NEET in young adulthood in Denmark, Finland and Sweden; and (ii) if poor school performance relates to this association differently among young people from OHC than for their peers in the general population. More specifically, to what extent does the high prevalence of poor school performance in the OHC population affect their risk of long-term NEET? Do they find other paths to employment outside the educational system or does it imply an increased NEET-risk compared with peers without OHC experience? And are there any cross-country differences in these matters? To our knowledge, these research questions have not been addressed in prior research.

The Nordic context

Table 1 summarises some of the similarities and differences in the institutional setting related to youths' transition in the three Nordic countries. Their respective child welfare systems share many features. The Nordic countries prioritise early prevention and family preservation (e.g., Gilbert et al., 2011), and OHC is used as a last resort when other alternative interventions have proven insufficient in securing the child's health and development (Pösö, Skivenes, & Hestbæk, 2014). Contrary to many other countries, teenage placement is more common than placement at younger ages (Fallesen, Emanuel, & Wildeman,

Table 1. Institutional characteristics and country context in Denmark, Finland and Sweden.

	Denmark	Finland	Sweden
<i>Upper secondary school</i>			
Enrolment rate (1)	95%	95%	99%
Upper age limit for entry (2)	No	No	Yes
Vocational education in preparation for tertiary education (2)	No	Yes	Yes
Typical graduation age ^a (1)			
On vocational track	20–21 years	19 years	18 years
On academic tracks	18–19 years	19 years	18 years
Completion rate at age 21 (at age 31) (3)	62% (83%)	82% (90%)	84% (90%)
<i>OHC</i>			
Proportion in OHC in study population ^b	5.5%	3.2%	3.2%
After-care services (4)	Yes, until age 23	Yes, until age 21 ^c	No
<i>Employment</i>			
Youth unemployment rate, 15–24 years (5)			
in 2008	8%	16%	20%
in 2010	14%	21%	25%
Employment protection (2)	Low	High	High

Sources: (1) Education at a glance 2012, OECD. (2) Bäckman et al. (2015). (3) Albæk et al. (2015). (4) Frederiksen and Lausten (2018); Barnskyddslag 417/2007; Storø, Sjöblom, and Höjer (2019). (5) OECD (2019). ^aThe typical age refers to the age of the students at the beginning of the school year; students will generally be 1 year older than the age indicated when they graduate at the end of the school year.; ^bProportion in OHC during childhood (<18 years) in the study population (residents 2008–2010 who were born in these countries in 1987).; ^cExtended until age 25 in January 2020.

2014; Kestilä et al., 2012; Socialstyrelsen, 2016). Most OHC placements are carried out with the parents’ and children’s consent, although involuntary placement is also legally possible (Andersen & Ebsen, 2010; Huhtanen, 2016; Socialstyrelsen, 2016). Sweden has no specific after-care services, but provides extended care until the completion of secondary education (Storø, Sjöblom, & Höjer, 2019). Denmark and Finland have after-care services until ages 23 (Frederiksen & Lausten, 2018) and 21 (extended until age 25 in 2020) (Barnskyddslag 417/2007), respectively.

The Nordic countries are traditionally classified as universal welfare regimes, and their systems for promoting youths’ school-to-work transition are largely similar (Helms Jørgensen, Järvinen, & Lundahl, 2019). The degree of inequality in educational opportunities is low from an international perspective (e.g., Jackson, 2014). Education is publicly funded and free, and tracking is low that is educational choices are made at higher ages and are less decisive for future educational opportunities. After completing the comprehensive level at age 15–16 that is primary school, most students continue to upper secondary education, to either academic or vocational tracks. The upper secondary completion rate differs between the three countries at age 21, but converges at higher ages. At age 31, approximately 90% had completed an upper secondary education in Finland and Sweden as compared with 83% in Denmark (Table 1). Results from a previous comparative study also suggest that the difference in graduation rates between young adults from OHC and their peers is greater in Denmark than in Finland and Sweden. The OHC population were 39 percentage points more likely than their non-OHC peers to lack

upper secondary education at age 23 in Denmark, compared with 27 and 24 percentage points in Finland and Sweden, respectively, when adjusting for birth mother’s socioeconomic characteristics (Kääriälä, Berlin, Lausten, Hiilamo, & Ristikari, 2018).

The differences in transition regimes across the three countries mainly appear in the linkage between the educational system and the labour market. Denmark has a long tradition of apprenticeship in the vocational upper secondary education, and a more liberal employment legislation which intends to promote a high job-to-job mobility and flows in and out of employment and unemployment according to the so-called ‘flexicurity model’ which combines *flexibility* on the labour market and income *security* for the citizen (Andersen & Svarer, 2007). Finland and Sweden have school-based vocational education and more rigid employment protection legislation (Bäckman et al., 2015; Helms Jørgensen et al., 2019). It is suggested that an apprenticeship-based system offers a smoother school-to-work transition, through the close contact to the labour market during the education and the promotion of hiring young people (e.g., European Commission, 2010; Scarpetta, Sonnet, & Manfredi, 2010). On the contrary, a school-based system provides general skills while specific work skills are taught after employment, and is therefore, less sensitive to structural labour market changes and disruption in education. The work-based vocational tracks in Denmark stretch over a longer time period than the school-based vocational tracks in Finland and Sweden. In Denmark and Finland, there is no upper age limit for upper secondary school, while Sweden refers older students to the adult educational system (Albæk et al., 2015; Bäckman, Jakobsen, Lorentzen, Österbacka, & Dahl, 2011).

Table 2. Research data, registers and data retrieved for variables.

Maintained by	National registers	Variables and data retrieved
<i>Denmark</i>		
Statistics Denmark	The Population Register	Sex; Definition of study population (all residents born in 1987 and residing in the country in 2008–2010); Identification of birth mother
	The Register on Children and Youth in Out-of-home Care	Information on OHC experience ^a
	The Education Register	Educational attainment by 31st December 2010; Birth mother's educational attainment by 31st December 2008 (missing education when no information on DISCED level 20); GPA last year in primary school
	The Register on Income and Social Assistance	NEET; Birth mother's social assistance in 1990–2004 (received social assistance for at least 180 days in 1 year)
	The Psychiatric Register	Birth mother's mental health problems ^b ; Birth mother's alcohol and drug abuse ^b
<i>Finland</i>		
The Finnish Population Register Centre	The Population Register	Definition of study population (all residents born in 1987 and residing in the country in 2008–2010)
National Institute for Health and Welfare, THL	The Medical Birth Register	Sex
	The Social Assistance Register	Birth mother's social assistance in 1990–2004 (received social assistance for at least 6 months in 1 year)
	The Hospital Discharge Register	Birth mother's mental health problems ^b ; Birth mother's alcohol and drug abuse ^b
Statistics Finland	The Child Welfare Register	Information on OHC experience ^a
	The Education Register	Educational attainment by 31st December 2010; Birth mother's educational attainment by 31st December 2008; GPA last year in primary school
Centre for Pensions and The Social Insurance Institution	A combination of employment and study grant	NEET
<i>Sweden</i>		
Statistics Sweden	The Total Population Register	Sex; Definition of study population (all residents born in 1987 and residing in the country in 2008–2010)
	The Multi-generation Register	Identification of birth mother
	The Longitudinal integration database for health insurance and social studies (LISA)	NEET; Educational attainment by 31st December 2010; Birth mother's educational attainment by 31st December 2004; Birth mother's social assistance in 1990–2004 (received over 50% of annual income as social assistance)
	The School Register ^c	GPA last year in primary school
	The National Board of Health and Welfare	The Child Welfare Intervention Register The National Inpatient Register

^aAge at first entry in OHC and total length of time in OHC before age 18.; ^b International Statistical Classification of Diseases and Related Health Problems 9th and 10th revisions (ICD-9 and -10) diagnosis from inpatient hospital care from 1987 to 2004. Mental health problems are defined by ICD-9 codes 293–302, 306–309, 311–316 and ICD-10 codes F20–F69, F80–F99. Alcohol and drug abuse are defined by ICD-9 codes 291–292, 303–304, 3050, 3059, 980 and ICD-10 codes F10–F19.; ^cAdministered jointly by the Swedish School Authority and Statistics Sweden.

Finland and Sweden have higher youth (ages 15–24 years) unemployment rates than Denmark. The study period (2008–2010) occurred during the great recession, during which youth unemployment rates increased from 8% to 14% in Denmark, from 16% to 21% in Finland and from 20% to 25% in Sweden (OECD, 2019). The lower rates in Denmark are partly explained by the apprenticeship system, in which students are counted as employed (Bäckman et al., 2015). The official NEET rates differ across the countries, with Finland having higher rates than Denmark and Sweden (Helms Jørgensen et al., 2019).

Taken together, we might expect a lower relative risk of NEET in the OHC population in Denmark, followed by Finland and lastly Sweden. This is true if we assume that the after-care service in Finland and Denmark is supportive during the OHC population's

school-to-work-transition, and that the low thresholds for entry onto the labour market in Denmark imply fewer differences between groups. However, it is not obvious what to expect as the research on the effects of after-care systems is scarce (Frederiksen & Lausten, 2018) and the implications of the differences in the linkage between the educational and labour market systems are not easily predicted (Bäckman et al., 2015).

Data and methods

This study is based on record linkages between longitudinal national registers covering the entire population born in 1987 in Denmark, Finland and Sweden, respectively. The registers and data used for each variable are presented in Table 2. The overall quality of the

registers is regarded as high, and the linkage was done using individually unique identification numbers. Due to legislative restrictions, we were not allowed to merge the separate country data sets into one common data set. Instead, each country team performed the analysis for their country in accordance with a joint study plan. Ethical permissions for the study were obtained from: the Stockholm Regional Ethics Committee (no 2007/679-31; no 4.2.1-17460/2012); the ethical committee of the Finnish Institute for Health and Welfare (Ethical Committee §28/2009); and the Danish Data Protection Agency (registry-based research at VIVE is done according to general legislation; each project does not require approval from an ethics committee).

Study population and subgroups

The study population consisted of all residents born in 1987 in Denmark, Finland and Sweden who were living in these countries in 2008–2010 at ages 21–23 years. The Danish study consisted of 54,269 individuals (of whom 2,997 or 5.5% had been in OHC), the Finnish study of 55,751 individuals (OHC: 1,835 or 3.2%) and the Swedish study of 99,499 individuals (OHC: 3,188 or 3.2%).

Children in OHC are a heterogeneous group in terms of their care histories. The high proportion of teenage placements, partly due to the inclusion of youth delinquency in the child welfare system, also distinguishes the Nordic countries from many other countries (Thoburn, 2007). In order to get more homogenous groups in terms of OHC experience (cf. Kääriälä et al., 2018; Triseliotis, 1989), the OHC population was divided into four mutually exclusive groups based on age at first entry and total time spent in OHC. These groups were compared with peers who had not been in care during their childhood (No OHC), resulting in five mutually exclusive study groups:

- *No OHC*: Never in OHC at age <18 years.
- *Early short*: Short-term OHC before teenage years that is first entry into OHC before age 13 with a total length of time in OHC of less than 1 year.
- *Early intermediate*: Intermediate-term care before teenage years that is first entry into OHC before age 13 with a total length of time in OHC of at least one but less than 5 years.
- *Early long*: Long-term care before teenage years that is first entry into OHC before age 13 with a total length of time in OHC of at least 5 years.
- *Teen care*: Placement during teenage years that is first entry into OHC at age 13 or later.

Outcome variable

In this study, we used a ‘strict’ measure of long-term NEET; that is, having no income at all (0) from education, employment or training, in 2 out of 3 years

when those in the study population were 21–23 years old. In so doing, NEET indicated those who were far away from labour market attachment. NEET is an acronym for Not in Employment, Education or Training. The NEET measure is sometimes criticised for being too imprecise, covering a heterogeneous group of young adults who are NEET for various reasons such as unemployment, ill-health, long-term journeys, work abroad or own activities (e.g., Furlong, 2006; Holte, Swart, & Hiilamo, 2019). Evidence suggests, however, that long-term NEET captures a relatively homogenous group, with a high concentration of social problems and transition failures (Albæk et al., 2015); and furthermore that long-term NEET has long-lasting implications for individuals’ work establishment and risk of social exclusion (Bäckman & Nilsson, 2016).

Control variables

The choice of control variables was not only guided by prior research, but also constrained by the need to use data that were available in all three countries. We included four socioeconomic family background variables, which have all been identified as risk factors for OHC in childhood (Simkiss, Stallard, & Thorogood, 2013) and which all relate to the birth mother. In order to reduce missing values, we did not use any data on birth fathers’ characteristics. The following background variables were used in the analysis (definitions and country-specific differences are given in Table 2, descriptive statistics in Table 3):

Sex: The results presented in the article are adjusted for sex.

Mother’s education: Birth mother’s educational level was categorised into three groups according to the highest attained qualification: (i) compulsory level (no ISCED level 3); (ii) secondary education (ISCED level 3 and 4); and (iii) post-secondary education (ISCED level 5 or higher). A fourth category for missing values was included for mothers without information on educational attainment in the registers.

Mother’s social assistance: This variable measures long-term economic distress in the birth family, and refers to whether the birth mother received social welfare benefits (a last-resort minimum income scheme) over two consecutive years from 1990 to 2004.

Mother’s mental health problems: This variable refers to whether the birth mother received inpatient

Table 3. Descriptive statistics by OHC subgroup, mean, %.

OHC subgroup	No OHC			All in OHC			Early short			Early inter			Early long			Teen care		
	DEN	FIN	SWE	DEN	FIN	SWE	DEN	FIN	SWE	DEN	FIN	SWE	DEN	FIN	SWE	DEN	FIN	SWE
<i>Per cent of OHC pop.</i>	-	-	-	100	100	100	11	14	17	16	11	14	23	29	20	51	47	49
<i>Mean (years)</i>	-	-	-	10.7	10.5	10.5	4.1	8.2	5.7	7.3	7.9	7.1	6.5	5.5	5.0	15.6	15.3	15.5
Age at first OHC	-	-	-	3.4	3.2	3.2	0.4	0.3	0.3	2.8	2.6	2.8	9.3	11.3	10.7	1.7	1.5	1.3
Total time in OHC	-	-	-	4.3	3.2	3.2	0.4	0.3	0.3	2.8	2.6	2.8	9.3	11.3	10.7	1.7	1.5	1.3
<i>Per cent</i>	-	-	-	4.3	3.2	3.2	0.4	0.3	0.3	2.8	2.6	2.8	9.3	11.3	10.7	1.7	1.5	1.3
Sex																		
Girls	49	49	49	46	51	52	43	43	48	41	45	44	41	45	48	50	58	58
Boys	51	51	51	54	49	48	57	57	52	59	55	56	59	55	52	50	42	42
Mothers':																		
Educational level																		
Primary	24	15	13	49	43	32	45	39	28	52	52	36	62	59	42	42	33	27
Secondary	40	45	51	29	44	49	30	47	53	27	38	48	16	37	41	35	49	52
Post-secondary	34	40	35	12	13	12	16	14	13	12	10	10	6	4	3	14	19	16
Missing ^a	2	-	1	10	-	7	9	-	6	9	-	6	16	-	14	9	-	5
Social assistance	34	8	26	75	56	85	82	59	88	82	68	92	84	77	94	67	39	77
Psychiatric care	2	3	3	11	20	21	7	25	28	13	21	27	16	30	31	8	12	12
Substance abuse	2	1	1	10	15	16	11	15	14	11	16	27	21	29	33	5	6	8
GPA																		
No or low	21	20	14	63	46	57	55	36	42	62	49	60	65	40	46	64	52	65
Above low	79	80	86	37	54	43	45	64	58	38	51	40	35	60	54	36	48	35
NEET 2008-2010	6	7	6	26	33	27	16	20	18	29	26	29	28	35	29	26	38	30
Total number (N)	51,272	55,916	96,311	2,997	1,835	3,188	316	256	545	478	193	434	682	524	649	1,521	862	1,560

^aIn Finland, missing information is included in the primary educational level in the registry.

hospital care during the period 1987–2004 with a psychiatric diagnosis.

Mother's alcohol and drug abuse: This variable refers to whether the birth mother received inpatient hospital care during 1987–2004 with an alcohol- or drug-related diagnosis, thus indicating severe abuse issues.

No or low GPA in primary school: As a measure of school performance, we used a dichotomous variable divided into those who had no or low GPA (grade point average) and those who had a GPA above low, in the final year of primary school. The GPA includes academic subjects, country-specific means (M) and standard deviations (SD) were used for categorisation. Low GPA refers to $GPA \leq (M - SD)$. No GPA refers to this information being missing in the educational registers. In Sweden and Denmark, missing GPA might be the result of either dropping out or frequently skipping school or attending a school which did not report grade points to the authorities, for example schools at residential care institutions or for students with special needs. In Finland, a missing GPA means that an individual has not applied for upper secondary education through the national joint application system, whereby grades are recorded in the register. The dichotomous GPA variable was used both separately (Table 4) and in combination with OHC experience (Table 5).

Statistical analysis

To estimate the risk of being NEET, we used binary logistic regression. The results are presented as average marginal effects (AME), which indicates in percentage points the predicted differences in outcome probability (here being NEET) between those with OHC experience (all or by subgroup) and those who were never in care (reference group with value 0). Data were analysed separately for each country as restrictions on data management prevented merging them together.

The analyses were performed both with the OHC population divided into the four subgroups (Early short, Early inter, Early long and Teen care), and with the entire OHC population as one joint group (All in OHC). We adjusted for background variables in three steps: in the first step we adjusted for sex (Model 1); in the second step we included background variables related to the birth mother (Model 2); and in the third step we included poor school performance (No or low GPA vs. GPA above low) (Model 3). In order to investigate the impact of early school failure on the propensity of being NEET in young adulthood, we also used a variable that combined OHC experience and poor school performance.

In Denmark, Stata version 14 with margins command was used. In Sweden and Finland, R for Windows (version 3.3.2) with mfx package's mfx command was used.

Results

Table 3 presents the descriptive statistics of the variables used in the multivariate analysis for each country. The OHC proportion was higher in Denmark than in Finland and Sweden, 5.5% as compared with 3.2% of the total native-born population in each country (number in Table 3, proportion in Table 1), which might be due to the inclusion of health-related placements in the OHC system in Denmark. In all three countries, approximately half (47%–51%) of the OHC population belonged to the Teen group. The heterogeneity in the OHC population in regard to care history was evident from the differences between the OHC subgroups in average age at first entry and total time in OHC.

Young adults from OHC had more than four times as high NEET prevalence than peers without OHC experience. While 6, 7 and 6% in the No OHC group were NEET in Denmark, Finland and Sweden, respectively, the corresponding proportions in the OHC population were 26%, 33% and 27%. Among the OHC groups, the Early short group, who entered care before teenage and stayed in OHC for less than a year, had the lowest prevalence of NEET in all three countries. The highest prevalence was found in the Teen group in Sweden (30%) and Finland (38%), and in the Early intermediate group (more than 1 year but less than 5 years in OHC) and Early long-term (more than 5 years in OHC) group in Denmark (29%). The proportion of poor school performance (No or low GPA in primary school) was substantially higher in the OHC population than among peers without OHC experience: twice as high in Finland, three times as high in Denmark and four times as high in Sweden.

Figure 1 illustrates the pathways from poor school performance to NEET in three steps: (i) GPA in primary school, (ii) completed upper secondary education at age 23, (iii) NEET at age 21–23. The last two steps are somewhat overlapping, as the NEET definition covers both education and employment during 2 out of 3 years. While the typical graduation age in Finland and Sweden at the upper secondary level is under 21 years, in both academic and vocational tracks, the typical graduation age in Denmark is 21–22 years in vocational tracks (Table 1). However, the difference between the OHC group and the No OHC group is still relevant within countries. In all three countries, the vast majority (67%–76%) of the No OHC group followed a straight advantageous path (from grades above low in primary school, to a completed upper secondary education, to not being NEET at age 21–23), compared



Figure 1. Pathways from poor school performance to NEET at age 21–23, divided into three steps: (i) GPA in primary school, Above low versus No or low; (ii) Completed upper secondary education at age 23 Upper (i.e., completed) versus Primary (i.e., not completed); and (iii) NEET at age 21–23. No OHC group and OHC group by country. Per cent.

to a minority (16%–28%) of the OHC group. The straight disadvantageous path (from no or low grades in primary school, to not completed upper secondary education, to being NEET at age 21–23) was almost

as common in the OHC group as the straight advantageous path. About one-fifth (17%–21%) followed this path, compared to only a few per cent (2%–3%) among young adults without OHC experience.

Table 4. Average marginal effects (AME) with 95% confidence intervals (CI) for NEET 2008–2010, by country.

	DEN		FIN		SWE	
	AME	95% C.I.	AME	95% C.I.	AME	95% C.I.
<i>All in care</i>						
Model 1 ^a						
All in OHC (ref = No OHC)	0.23	0.21–0.24	0.26	0.24–0.28	0.22	0.20–0.23
Model 2 ^b						
All in OHC (ref = No OHC)	0.15	0.14–0.17	0.14	0.12–0.16	0.12	0.11–0.14
Model 3 ^c						
All in OHC (ref = No OHC)	0.10	0.08–0.10	0.11	0.10–0.13	0.06	0.05–0.07
No or low GPA (ref = GPA above low)	0.08	0.08–0.09	0.12	0.11–0.12	0.15	0.15–0.16
<i>Subgroups</i>						
Model 1 ^a						
No OHC	ref		ref		ref	
Early short	0.13	0.08–0.17	0.13	0.08–0.18	0.12	0.09–0.15
Early inter	0.25	0.21–0.29	0.20	0.13–0.26	0.23	0.19–0.27
Early long	0.25	0.22–0.28	0.28	0.24–0.32	0.25	0.22–0.27
Teen care	0.23	0.20–0.25	0.31	0.28–0.34	0.24	0.20–0.27
Model 2 ^b						
No OHC	ref		ref		ref	
Early short	0.08	0.05–0.11	0.04	0.01–0.07	0.05	0.03–0.08
Early inter	0.16	0.13–0.20	0.07	0.03–0.11	0.13	0.10–0.16
Early long	0.15	0.13–0.18	0.11	0.08–0.14	0.12	0.09–0.15
Teen care	0.16	0.15–0.18	0.21	0.14–0.24	0.16	0.14–0.18
Model 3 ^c						
No OHC	ref		ref		ref	
Early short	0.05	0.02–0.07	0.03	0.00–0.06	0.03	0.01–0.05
Early inter	0.11	0.08–0.13	0.05	0.01–0.08	0.06	0.04–0.08
Early long	0.10	0.08–0.12	0.11	0.08–0.14	0.07	0.05–0.08
Teen care	0.10	0.08–0.11	0.15	0.13–0.18	0.09	0.07–0.11

^aAdjusted for sex.; ^bAdjusted for sex and birth mother's characteristics (education, social assistance, psychiatric care and substance abuse).; ^c Adjusted for sex, birth mother's characteristics and GPA.

Table 4 presents the average marginal effects (hereafter, AME) of long-term NEET in the OHC population compared to peers without OHC experience (No OHC). Estimates for the total OHC population (All in OHC) are presented at the top of the table, and estimates for the respective subgroups (Early short, Early inter, Early long and Teen care) are presented in the bottom of the table. All results were adjusted for sex. Sex-stratified analyses were also performed, and the results were similar for females and males (not shown).

The OHC population's excess risk of NEET compared to peers without OHC experience was similar in all three countries. When only sex was adjusted for (Model 1), the excess risk varied from 22% in Sweden (AME 0.22) to 26% in Finland (AME 0.26). When the birth mother's characteristics (education, social assistance, psychiatric care and substance abuse) were adjusted for, the excess risk was reduced by a third in Denmark (8 percentage points), and by almost half in Finland (12 percentage points) and Sweden (10 percentage points) (Model 2). When poor school performance was included in the model (Model 3), the excess risk of being NEET decreased further.

Among the OHC groups, the Early short group had the lowest excess risks of NEET in all three countries. In Finland, there was a clear gradient in the excess risk

of NEET from the Early short group (AME 0.13) to the Teen group (AME 0.31) when only sex was adjusted for (Model 1). In Denmark and Sweden, all OHC groups besides the Early short group (AME 0.12–0.13) had similar excess risks of NEET (AME: 0.23–0.25).

The combined variable showed that the excess risk of NEET was especially elevated among those with both OHC experience and poor school performance (Table 5: All in OHC * GPA) in all three countries. Those with OHC experience *but without* poor school performance had an excess risk of 11–14 percentage points (AME: 0.14 in Denmark and Finland, and 0.11 in Sweden), while those with OHC experience *and* poor school performance had an excess risk of 32–34 percentage points (AME: 0.34 in Denmark, 0.33 in Finland and 0.32 in Sweden), compared with the reference group with neither OHC experience nor poor school performance.

In line with the results presented in Table 4, the analysis also indicated that poor school performance was more decisive for the risk of being NEET in Sweden, while OHC experience was more decisive in Denmark. Finland was in-between. Among young adults *without OHC experience*, those with poor school performance had an excess risk of 9 percentage points in Denmark (AME: 0.09) and 16 percentage points in

Table 5. OHC experience in combination with GPA. Adjusted^a average marginal effects (AME) with 95% confidence intervals (CI) for NEET 2008–2010, by country.

	DEN		FIN		SWE	
	AME	95% C.I.	AME	95% C.I.	AME	95% C.I.
<i>All in OHC * GPA</i>						
All in OHC, no or low GPA	0.34	0.32–0.36	0.33	0.30–0.36	0.32	0.30–0.34
GPA above low	0.14	0.12–0.17	0.14	0.12–0.17	0.11	0.09–0.13
No OHC, no or low GPA	0.09	0.09–0.10	0.12	0.11–0.13	0.16	0.15–0.17
GPA above low	ref		ref		ref	
<i>Subgroup * GPA</i>						
Early short, no or low GPA	0.27	0.21–0.33	0.21	0.13–0.30	0.24	0.18–0.29
GPA above low	0.03	–0.02–0.09	0.04	–0.01–0.08	0.05	0.02–0.09
Early inter, no or low GPA	0.36	0.31–0.41	0.27	0.19–0.36	0.32	0.27–0.38
GPA above low	0.19	0.13–0.25	0.03	–0.03–0.08	0.10	0.05–0.15
Early long, no or low GPA	0.36	0.32–0.41	0.32	0.26–0.38	0.40	0.35–0.45
GPA above low	0.14	0.09–0.18	0.14	0.10–0.18	0.09	0.06–0.13
Teen care, no or low GPA	0.34	0.31–0.37	0.36	0.32–0.41	0.31	0.29–0.34
GPA above low	0.16	0.13–0.19	0.21	0.17–0.26	0.15	0.12–0.19
No OHC, no or low GPA	0.09	0.09–0.10	0.12	0.11–0.13	0.16	0.15–0.17
GPA above low	ref		ref		ref	

^a Adjusted for sex and birth mother's characteristics (education, social assistance, psychiatric care and substance abuse).

Sweden (AME: 0.16), compared to those without poor school performance. And among young adults *with poor school performance*, OHC experience increased the excess risk by 25 percentage points in Denmark (AME: 0.34 vs. 0.09), by 21 percentage points in Finland (AME: 0.33 vs. 0.12) and by 16 percentage points in Sweden (AME: 0.32 vs. 0.16). Poor school performance inflicted an increased risk of being NEET in all subgroups, including those without OHC experience (Table 5, OHC subgroup * GPA). Among young adults from OHC, the excess risks were generally low (AME: 0.03–0.05) among those who had been in care for a short while before their teenage years and had grades above low (Early short, GPA above low).

Discussion

This study examined the cross-country variations of NEET among young adults from OHC compared with their peers without OHC experience in Denmark, Finland and Sweden, using large nationwide birth cohort data. The answers to the research questions can be summarised in four main findings. First, the proportion who were NEET was substantially higher among young adults from OHC as compared with their peers without OHC experience at age 21–23 in all three countries (Table 3). This indicates that the welfare systems in the three countries were not able to compensate for childhood disadvantages among this vulnerable group of children and youth. It is alarming that about a fourth (in Denmark and Sweden) to a third (in Finland) of youth from OHC were NEET in young adulthood, especially as we used a 'strict' NEET definition of no income at all related to education or employment in 2 out of 3 years. Generally, official NEET statistics include

different levels of inactivity that is NEET allows for some degree of income from education, employment or training (e.g., Bäckman & Nilsson, 2016; OECD, 2019). Our 'strict' definition gives a lower NEET proportion than the official statistics, indicating that we measured a more severe form of inactivity whereby individuals stood further from the common transition paths, and from labour market attachment.

Our measurement period (2008–2010) occurred during the great recession, during which youth unemployment rates were high and young people's entrance onto the labour market was more difficult. However, the study groups were compared during the same time. A vast body of research shows that being NEET at a young age increases the risk of social exclusion later in life (e.g., Bolibar, Verd, & Barranco, 2019) and that the timing of the school-to-work transition in relation to the business cycle has long-term effects on individuals' employment establishment (Bäckman, 2010). The results are consistent with prior international research on poor employment outcomes in the OHC population (Cameron, Jackson, Hauari, & Hollingworth, 2012; Cassarino-Perez et al., 2018; Font et al., 2018; Hook & Courtney, 2011; Mendes, 2009; Stewart et al., 2014), and add to these findings by showing that youth from OHC have a substantially higher risk of long-term NEET than their non-OHC peers in Denmark, Finland and Sweden.

Second, OHC experience and poor school performance both had an independent effect on the risk of NEET when sex and maternal background factors were controlled for (Table 4), which was enforced in combination that is accumulated (Table 5). Poor school performance is often the start of a negative

process of early school leaving, low educational attainment, future unemployment and, in the long run, an increased risk of social exclusion (Albæk et al., 2015; Bäckman et al., 2015; Bäckman & Nilsson, 2007, 2011). There are two main approaches concerning the mechanisms in such processes in the theory of cumulative (dis)advantage. Path theory poses that one event leads to another (e.g., family factors lead to OHC, OHC leads to poor school performance and poor school performance leads to NEET), while accumulation theory poses that different attributes enforce each other (DiPrete & Eirich, 2006). A path dependency is evident if OHC does not have an independent effect on NEET when results are adjusted for poor school performance (Berkman, 2009; Ferraro et al., 2016). Our results indicate both a path dependency and an accumulated effect of OHC experience and poor school performance on the risk of long-term NEET.

Third, the OHC population's excess risk of long-term NEET was similar across countries regardless of the differences in the systems across the three countries that is Sweden having no specific after-care service (Storø et al., 2019) and Denmark having a skill-based vocational education, stronger educational stratification and weaker employment protection legislation than Sweden and Finland (Helms Jørgensen et al., 2019). However, previous Nordic comparative studies in the general population suggest that the differences in the transition systems mainly apply to those who complete their upper secondary education (Albæk et al., 2015; Bäckman et al., 2011, 2015). And a recent study on employment outcomes among care leavers in Britain, Finland and Germany suggests similar disadvantages in work establishment among young adults from OHC although these countries belong to different transition regimes (Britain, liberal; Germany, conservative) (Cameron et al., 2018).

Early school leaving is identified as a key factor for the risk of NEET in all three countries. Even though the school-to-work transition has been found to be smoother in the skill-based vocational system, this does not apply to those who drop out from upper secondary education. On the contrary, it is suggested that early school leaving has a stronger negative effect in the skill-based system than in the school-based system (Albæk et al., 2015; Bäckman et al., 2011). Social networks, especially the mother's networks (Roth, 2014), have also been found to be important for the chances of finding an apprenticeship, which leads to greater difficulties in finding an apprenticeship when the social networks are weaker, for example, among immigrants (Helland & Støren, 2006) or disadvantaged youth (Brahm, Euler, & Steingruber, 2014; Schmidt, 2010). Findings from Norway, which

has an apprenticeship system similar to the one in Denmark, also suggest that one of the reasons for the high dropout rate among youth from OHC is the discontinuity of their educational pathway before finding an apprenticeship (Dæhlen, 2017). However, the school-based system stratifies (indirectly or directly) through previous educational achievements, which is shown to have a strong impact on future development for youth from OHC (Berlin et al., 2011; Forsman et al., 2016). This was supported by the results in this study, in which school-based systems in Finland and Sweden did not perform any better in reducing the OHC population's risk of being NEET than the skill-based system in Denmark. Instead, they stratified slightly more through grades in primary school, especially in Sweden.

Fourth, the patterns between the different OHC subgroups were similar across countries that is all subgroups had a high prevalence of poor school performance and NEET and those who stayed in care for less than a year at a young age (Early short) had the lowest risk of NEET among the OHC subgroups. The results from this comparative Nordic study support previous studies (e.g., Cameron et al., 2018) regarding the lack of adequate support in providing the OHC population with educational and employment opportunities at a level comparable to that of their peers.

Strengths and limitations

The strength of this study is that we were able to use the same study design in three different countries, using large nationwide birth cohort data and examining an entire birth cohort of individuals who had been in OHC in these countries. We were able to divide the OHC population into subgroups regarding care experience and to control for the birth mother's characteristics. However, the study also has a number of limitations. First, the study design was restricted by data availability across countries. The longest available follow-up was to 2010 when the birth cohort of 1987 turned 23 years of age, meaning that our findings might not reflect the most recent situation. However, we are not aware of any significant changes in long-term outcomes among children in OHC. Indeed, Swedish data suggest that educational patterns and the high risk of adverse development have remained fairly stable over time (e.g., Berlin, 2020). In addition, because of the high prevalence of missing data among the cohort members' fathers, we were unable to use paternal covariate data. However, unlike many studies on children in OHC, we controlled for birth mother's socioeconomic background, which often correlates with the father's situation (e.g., Kalmijn, 1998).

Furthermore, we were not able to control for reasons for OHC, and unlike in Sweden and Finland, the Danish child welfare register merges health-related placements with other child welfare placements. The Finnish child welfare register only includes complete placement information from 1987 for those who were in OHC from 1991 onward. Our NEET definition refers to having no income at all related to education, employment or training, implying that additional activities that are not related to the general educational system or the open labour market are also counted as NEET, for example, parental leave. However, only those who had no educational or employment incomes for 2 out of 3 years are counted as NEET, and the differences in NEET proportions between females and males were small.

Implications for research and practice

This study demonstrates a high prevalence of NEET among youth from OHC, and that the high prevalence of poor school performance in the OHC population was associated with their excess risk of NEET. Results suggest that current measures aimed at improving young adults' educational attainment and labour market entrance are insufficient to compensate for the childhood adversities of children in OHC. Reducing early school leaving is one of the main targets in the European Union, in order to tackle unemployment as well as promote social mobility (European Commission, 2010). This is vitally important for children in care, and tests of different support programmes aimed directly at improving their school performance have shown promising results (Forsman & Vinnerljung, 2012; Männistö & Pirttimaa, 2018). Early work experience while in care may also improve OHC youths' chances of labour market entrance when they exit OHC (Stewart et al., 2014). Several studies also suggest that continued support after care has a positive impact on care leavers' opportunities in future life (e.g., Hook & Courtney, 2011; Mendes, 2009). This might be even more important now than in the past, due to the complex and extended transition phase which has prolonged young adults' dependence on their parents, and has potentially increased the relative disadvantage of OHC youth compared to their peers who grow up in their home of origin (Schoon & Lyons-Amos, 2016; Settersten & Ray, 2010).

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