Children Placed In Out-of-Home Care as Midlife Adults: Are They Still Disadvantaged or Have They Caught Up With Their Peers?

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Abstract
International research has consistently reported that children placed in out-of-home care (OHC) have poor outcomes in young adulthood. Yet, little is known about their outcomes in midlife. Using prospective data from a cohort of more than 14,000 Swedes born in 1953, of which nearly 9% have been placed in OHC, this study examines whether there is developmental continuity or discontinuity of disadvantage reaching into middle age in OHC children, compared to same-aged peers. Outcome profiles, here conceptualized as combinations of adverse outcomes related to education, economic hardship, unemployment, and mental health problems, were assessed in 1992–2008 (ages 39–55). Results indicate that having had experience of OHC was associated with 2-fold elevated odds of ending up in the most disadvantaged outcome profile, controlling for observed confounding factors. These findings suggest that experience of OHC is a strong marker for disadvantaged outcomes also in midlife.

Keywords
child welfare, cohort study, foster care, longitudinal research

Placement in out-of-home care (OHC; foster family or residential care) is intended to monitor and improve children’s well-being when parents are unable to secure a safe and stable upbringing (Fernandez & Barth, 2010). Children in OHC often come from adverse family backgrounds; many have experiences of child maltreatment and some exhibit early emotional and behavioral problems. In Sweden, which is the focus of this study, the pronounced aim is to provide the child with better opportunities for development than in an adverse birth home. Yet, childhood experience of OHC seems to be one of the strongest markers for compromised long-term health and psychosocial development that we know of (Goemans, van Geel, van Beem, & Vedder, 2016), on par with victimization from persistent bullying in childhood (Takizawa, Maughan, & Arseneault, 2014; Viner & Taylor, 2005).

Long-term outcomes for former children with OHC experience tend to be poor (compared to peers without OHC experiences) in all life areas that have been examined in longitudinal studies: education (e.g., Vinnerljung, Berlin, & Hjern, 2010), economic hardship (e.g., Warburton, Warburton, Sweetman, & Hertzman, 2014), offending (e.g., Doyle, 2008), substance abuse (e.g., Traube, James, Zhang, & Landsverk, 2012), and health (e.g., Zlotnick, Tam, & Soman, 2012). However, these studies have looked at outcomes in young adulthood—typically when the OHC alumni were 20–30 years of age. We are not aware of any large sample prospective study that has examined midlife (ages 40–60) outcomes. This is potentially relevant for understanding life-course development among children for whom society has assumed parental responsibilities during their formative years.

Sweden has been described as an open society, implying that the association between social origin and destination is comparatively weak (Breen & Jonsson, 2005). Like other Scandinavian countries, Sweden’s encompassing welfare policies represent a mobility regime since such arrangements (together with a compressed income distribution) have been shown to weaken problems related to social heredity (Esping-Andersen & Wagner, 2012). Today, a child born in Sweden has substantially better chances of fulfilling the “American dream” (starting at the bottom of the socioeconomic ladder and ending up in the top) than a child born in the United States (Corak, 2006), where the association between social origin and destination is far stronger. Nonetheless, intergenerational transmission of inequality does exist (Ermisch, Jäntti, & Smeeding, 2012), and recent research shows that this transmission has persisted
across four generations of contemporary Swedes (Hällsten, 2014). It also remains unclear whether the Scandinavian approach to welfare policy improves transitions into adulthood for truly vulnerable populations, such as children with experiences of OHC.

In light of the above, what can we expect to find when looking at OHC children’s outcomes in midlife? In sociological and epidemiological life-course research (Kuh, Ben-Shlomo, Lynch, Hallqvist, & Power, 2003), cumulative inequality theory suggests that inequalities emerge early in life and tend to mount up over the life course (Ferraro, Shippee, & Schafer, 2009). Drawing on the concept of cumulative disadvantage (DiPrete & Eirich, 2006), a central tenet of this theoretical framework is that a disadvantage in one life domain not only increases the likelihood of exposure to other disadvantages in the same life domain but also to disadvantages in other life domains (O’Rand, 1996). Various terms have been used to describe the interdependence between disadvantages within and across life domains, most of which reflect the existence of problems or disadvantages as something that is multidimensional, accumulated, and concurrent. We use the term coexisting disadvantages (Heap, Lennartsson, & Thorslund, 2013) to highlight these conceptual properties.

Research has consistently documented that child maltreatment has negative and persistent developmental consequences over time for the victims. Norman and colleagues (2012) concluded, in a meta-analysis of 124 studies with varying follow-up time, that the evidence strongly suggests a causal relationship. Widom and associates have reported that individuals with documented histories of childhood abuse and/or neglect have lower levels of education, employment, earnings (Currie & Widom, 2010), and poor physical/mental health outcomes even in midlife adulthood (mean age 41; Sperry & Widom, 2013; Widom, Czaja, Bentley, & Johnson, 2012). Similar results have been reported from the United Kingdom (Collishaw et al., 2007).

Children placed in OHC are nested within this abundance of scholarly work, but they are seldom reported or analyzed separately. They represent cases where abuse/neglect tends to be combined with parental serious psychopathology and persistent familial poverty. In addition, a host of studies have shown that the rates of childhood mental disorders are strikingly high in OHC populations, also in Scandinavia (e.g., Lehmann, Havik, Havik, & Heiervang, 2013) and do not seem to improve over time while children remain in societal care (e.g., Goemans, van Geel, & Vedder, 2015). These findings are especially salient in a life-course perspective since childhood psychopathology is strongly linked to socioeconomic outcomes, mortality, and physical/mental health in midlife years (e.g., Clark, Caldwell, Power, & Stansfeld, 2010). However, compared to research on other vulnerable child populations, little is known about the midlife situation for adults with childhood experiences of societal care.

Individuals with childhood experiences of child maltreatment and OHC may be more vulnerable to all kinds of risks and pressures throughout the life course, suggesting a lasting “social imprint” of the traumatic events encompassed in this experience (Bäckman & Palme, 1998; Ferraro & Kelley-Moore, 2003). In the case of the current study, it could be argued that the child’s placement in OHC is part of a broader clustering of adverse exposures in childhood that accumulates as the child approaches young adulthood and continues to gradually worsen across life. It is therefore reasonable to hypothesize a developmental continuity of disadvantage, reaching into middle age.

However, we can also expect developmental discontinuity. The influence of an adverse childhood may be erased or even reversed by later experiences (Schulenberg, Maggs, & O’Malley, 2003). Several longitudinal studies have reported results, indicating that children seriously disadvantaged in early life may catch up substantially with their peers during the life course. One notable example is Werner and Smith’s (2001) follow-up at age 40 of the children from the Kauai Island study. Another is Long and Vaillant’s (1984) prospective study of 456 inner-city Boston men born in the late 1920s. Men from chronically welfare dependent and multiproblem families (usually with parental alcohol addiction problems) were in their late 40s indistinguishable from peers raised in stable working-class families in terms of income, employment, offending, and mental health. Thus, it is equally reasonable to hypothesize that midlife outcomes of children with experience of OHC may converge with majority population peers, at least in some life areas (Viner & Taylor, 2005).

This article describes the prospective assessment of midlife social, economic, and health-related disadvantages in individuals with and without experience of OHC. We ask to what extent children placed in OHC during their formative years have poorer outcomes as midlife adults, compared to their same-aged peers without OHC experience. Since prior studies have provided mixed evidence regarding the moderating effect of gender (Fernandez & Barth, 2010; Viner & Taylor, 2005), we also examine whether the studied associations differ between men and women.

Using comprehensive prospective data from a cohort of more than 14,000 individuals born in 1953 and living in Metropolitan Stockholm (the capital region of Sweden), we overcome some shortcomings in prior research. First, we are not dependent on cross-sectional data and we do not rely on retrospective self-reports or parental reports about experiences of OHC. Both outcome and confounding variables have a temporal order. Our birth cohort sample also includes a large number of individuals with and without experience of OHC. Second, we adopt a person-centered approach based on latent class analysis (LCA) to examine groupings of outcomes in mature adult age for OHC alumni, conceptualized as combinations of midlife adverse outcomes related to social, economic, and health-related disadvantage, rather than analyzing outcomes in isolation of each other. More specifically, and in line with several previous studies in other areas of research (e.g., Almquist, 2015; Almquist & Brännström, 2014), we capture these outcomes through register-based information—with little attrition—on education, economic hardship, unemployment,
and mental health problems. The approach of measuring combinations of outcomes is usually deemed the best way to address the complex reality of poverty, social exclusion, and inequality (Nolan & Whelan, 2011). We know from empirical research focusing on welfare states and social policy that some disadvantages are more closely connected than others. For example, unemployment and financial difficulties seem to be key elements of coexisting disadvantages (Korpi, Nelson, & Stenberg, 2007). We also examine midlife outcomes during a longer period of time. Last, we capitalize on recent methodological developments by estimating nonlinear probability models—that are unaffected by the rescaling bias that arise in cross-model comparisons—to examine whether patterns of midlife trajectories differ between individuals with and without experiences of OHC (Karlson, Holm, & Breen, 2012), after controlling for robust socioeconomic indicators of their birth homes including familial poverty.

**Method**

**Sample and Procedure**

The data material used is the Stockholm Birth Cohort (SBC) study. The cohort was defined as all individuals born in 1953 who were resident in the greater Stockholm metropolitan area in 1963 and resident in Sweden in 1980 and/or 1990. The SBC currently encompasses survey and register data from birth to age 55 for 14,294 individuals. Only those who had full information about the study variables were included in the analysis, reducing the original sample to 12,995 individuals. Attrition (9.1% of cases) was primarily due to death or migration. Ethical permission for the SBC was obtained from the Stockholm Regional Ethics Committee (Stenberg et al., 2007).

Around 9% of the 12,971 cohort members (n = 1,111; 585 men, 526 women) had experience of OHC at some point between birth and age 19 (1953–1972). We excluded 234 children who were placed solely due to own behavior, leaving us with an analytical sample of 12,737 individuals of which nearly 7% (n = 881; 459 men, 422 women) had been placed in OHC due to family circumstances (abuse, neglect, parental substance abuse or mental ill-health, etc.). This strategy reduces well-known problems related to sample heterogeneity.

The birth cohort addressed in this study grew up in the 1950s and 1960s, two decades when the scope of the Swedish welfare state and child welfare was substantially expanded. There was no national placement policy, which resulted in a very heterogeneous child welfare system, based on local (municipal) policies. The authorities were especially concerned with the many children born to single young mothers after the war (Lundström, 1993)—a time of growing affluence and a strong increase in birth rates (the baby boom), but also a time of serious housing shortage in the cities, and limited access to birth control devices for young people. In addition, policy and law makers believed strongly in the preventive abilities of the child welfare work and in the social workers ability to predict on an individual level which children would grow up to be juvenile delinquents or carriers of other undesired social problems in the future (Vinnerljung, 1996). As a consequence, child welfare authorities became involved in the lives of a large part of the national child population. OHC was regarded as an effective way for society to prevent a commonly feared intergenerational transmission of social problems. Thus, our cohort, born in 1953, grew up in an environment where child welfare authorities were an important—and invasive—tool for the social engineering ambitions of the Swedish welfare state (Ohrlander, 1992). This is also reflected in the high prevalence of OHC experience in our data. Stockholm and other big cities each had their own host of residential care facilities for children of all ages, in addition to a large foster family care system (Larsson & Ekenstein, 1983).

**Measures**

**Outcome profiles 1992–2008.** We analyzed groupings of disadvantaged midlife outcomes in terms of four broad register-based indicators related to education, economic hardship, unemployment, and mental health problems (Table 1). The first three variables were derived from the Longitudinal Integration Database for Health Insurance and Labor Market Studies (LISA by Swedish acronym). The fourth was based on information from the Hospital Discharge Register which contains national data on in-patient care.

Education refers to educational attainment in 2008 (age 55). Based on the Swedish Educational Terminology (SUN by Swedish acronym), it ranges from compulsory education to postgraduate education. This variable was transformed into the following categories: “compulsory” (1st to 9th grade), “upper secondary” (10th to 12th grade), and “university” (including all types of education at a higher level than upper secondary school). Our indicator of economic hardship reflects the amount of income due to means-tested social assistance recipiency (welfare payments), expressed in hundreds of Swedish crowns per year between 1992 and 2008 (ages 39–55). Unemployment refers to the number of days in full-time unemployment during a year for the period 1992 to 2008 (ages 39–55). For each year, the information about social assistance recipiency and unemployment was coded into dummy variables, indicating recipiency of social assistance or being unemployed, respectively, and subsequently recoded into three categories: “0 years,” “1–2 years,” and “3 or more years.” Mental health problems refer to the number of hospital admissions due to mental and behavioral disorders (diagnoses reflecting, e.g., depression, anxiety, and alcohol or drug use) in 1992–2008 (ages 39–55). This information was categorized into “0 admissions,” “1–2 admissions,” and “3 or more admissions.”

The main reason for categorizing the three latter indicators was to account for their skewness. The correlations between the outcome measures were as follows: educational attainment and social assistance recipiency: \( r = -.18 \), educational attainment and unemployment: \( r = -.11 \), educational attainment and mental health problems: \( r = -.08 \), social assistance recipiency and unemployment: \( r = .35 \), social assistance recipiency and
| Variable                          | Description                                                                 | Values | All (n = 12,737) | OHC (n = 877) | Non-OHC (n = 11,860) | Differencea |
|----------------------------------|------------------------------------------------------------------------------|--------|-----------------|---------------|---------------------|-------------|
| Placement in OHC in childhood    | Placement due to family circumstances 1953–1972 (ages 0–19)                | —      | 6.9             | —             | —                   | —           |
| Education in midlife             | Educational attainment 2008 (age 55)                                        | Compulsory | 15.4          | 24.5          | 14.7         | 9.8 (p = .000) |
|                                  |                                                                              | Upper secondary | 43.7          | 50.6          | 43.2         | 7.4 (p = .000) |
|                                  |                                                                              | University     | 40.9          | 24.9          | 42.1         | 17.2 (p = .000) |
| Economic hardship in midlife     | Means-tested social assistance recipiency 1992–2008 (ages 39–55)           | 0 Years    | 79.8          | 62.3          | 81.1         | 18.8 (p = .000) |
|                                  |                                                                              | 1–2 Years    | 10.8          | 15.5          | 10.4         | 5.1 (p = .000) |
|                                  |                                                                              | 3 or more years | 9.4      | 22.2          | 8.5          | 13.7 (p = .000) |
| Unemployment in midlife          | Unemployment 1992–2008 (ages 39–55)                                        | 0 Years    | 65.9          | 58.1          | 66.5         | 8.4 (p = .000) |
|                                  |                                                                              | 1–2 Years    | 14.6          | 15.3          | 14.5         | 0.8 (p = .517) |
|                                  |                                                                              | 3 or more years | 19.5 | 26.6          | 19.0         | 7.6 (p = .000) |
| Mental health problems in midlife | Mental health problems as indicated through hospital admissions due to mental and behavioral disorders 1992–2008 (ages 39–55) | 0 Admissions | 94.5          | 89.2          | 94.9         | 5.7 (p = .000) |
|                                  |                                                                              | 1–2 Admissions | 3.6          | 6.3           | 3.4          | 2.9 (p = .000) |
|                                  |                                                                              | 3 or more admissions | 1.9 | 4.5           | 1.7          | 2.8 (p = .000) |
| Gender                           | Sex                                                                          | Men        | 49.7          | 51.9          | 49.8         | 2.1 (p = .230) |
|                                  |                                                                              | Women       | 50.3          | 48.1          | 50.2         | 2.1 (p = .230) |
| Parental social class in early childhood | Occupation class of the head of the household (typically the biological father) 1953 (age 0) | Upper and upper middle class | 13.3          | 3.0           | 14.0         | 11.0 (p = .000) |
|                                  |                                                                              | Lower middle class, officials, and nonagricultural employees | 30.8         | 22.2          | 31.5         | 9.3 (p = .000) |
|                                  |                                                                              | Lower middle class, entrepreneurs | 6.1          | 6.5           | 6.1         | 0.4 (p = .633) |
|                                  |                                                                              | Working class, skilled workers | 27.8         | 35.8          | 27.2         | 8.6 (p = .000) |
|                                  |                                                                              | Working class, unskilled worker | 18.9         | 28.4          | 18.2         | 10.2 (p = .000) |
|                                  |                                                                              | Missing data | 3.1          | 4.1           | 3.0         | 1.1 (p = .068) |
| Household poverty in early childhood | Years with means-tested social assistance recipiency 1953–1959 (ages 0–6) | Min–max: 0–7 | Mean (SD) | Mean (SD) | Mean (SD) | 1.52 (p = .000) |
|                                  |                                                                              | 0.39 (1.21) | 1.82 (2.29) | 0.28 (1.02) |               |             |

Note. Results from two-sample test of proportions/means. OHC = out-of-home care; SD = standard deviation.

*aAbsolute difference in percentage units/means.
mental health problems: \( r = .26 \), and unemployment and mental health problems: \( r = .10 \).

**Control variables.** The choice of control variables was guided by prior research but was also constrained to data that are recorded in the registers. When assessing how placement in OHC was associated with the odds of ending up in the midlife outcome profiles, we controlled for parental social class in early childhood by including dummy variables for head of household’s social class based on occupational status in 1953 (see Table 1). We moreover controlled for household poverty in early childhood by including dummies for the number of years between 1953 and 1959 that the cohort member’s birth family received means-tested social assistance. We also included a dummy variable for sex. The correlations between sex and parental social class and sex and household poverty in childhood were \( r = .00 \) and \( r = .01 \), respectively. The correlation between parental social class and household poverty in childhood was \( r = .17 \). Regarding these variables relationship with OHC, the correlation coefficients were .01 for sex, .10 for parental social class, and .32 for household poverty.

**Statistical Analysis**

Simple descriptive analysis of the analytical sample and variables, including bivariate comparisons of the OHC and non-OHC group with results from two-sample test of proportions/means, is presented in Table 1.

We applied LCA using Mplus 6.1 (Muthén & Muthén, Los Angeles, CA) to reduce the number of combinations (four three-level ordinal variables yield \( 3^4 = 81 \) possible alternatives) and thereby identifying relevant groupings of outcomes for the addressed period. Model fit statistics are reported in Table 2, while identified outcome profiles are depicted in Figure 1. The labels of the classes were based on one-half standard deviation from the mean.

To assess how placement in OHC was associated with the odds of ending up in the various midlife outcome profiles, multinomial logistic regression analysis was performed (see Table 3). To avoid rescaling bias, and thereby facilitate interpretation between crude and adjusted odds ratios (ORs), the Karlson/Holm/Breen method (KHB) was used (Kohler, Karlson, & Holm, 2011). The KHB method also extends the decomposition properties of linear models to logistic regression models, and thereby it also shows the degree to which confounding factors explain the relationship between a hypothesized risk factor (here, OHC experience) and a latent outcome variable underlying the nonlinear probability model (Breen, Karlson, & Holm, 2013). To allow for OHC to have a differential effect on men and women, we also estimated sex-specific regression models. Unlike models that include a statistical interaction term (effect modification), estimating separate models by sex also allows for differential effects on the confounding factors. All regression analyses were performed using Stata 14/SE-version (StataCorp LP, College Station, TX).

**Results**

Table 1 provides descriptive statistics and shows (as noted above) that nearly 7% had an experience of being placed in OHC for reasons related to their parents’ problems. With few exceptions (e.g., men and women are equally represented), the distribution of the variables significantly differed between the OHC and non-OHC sample. For example, cohort members with the experience of OHC had substantially lower educational attainment as well as more experiences of means-tested social assistance recipiency, unemployment, and mental health problems in midlife, compared to their same-aged peers. They also had more experiences of household poverty in early childhood and had to a larger extent grown up in a household with working class background.

Table 2 reports model fit statistics for different LCA solutions, including the Akaike information criterion (AIC) and the Bayesian information criterion (BIC). When applying LCA, deciding on the number of classes is an intricate task that can be guided by evaluating a number of model fit statistics (Nylund, Asparouhov, & Muthén, 2007). Lower values of AIC and BIC correspond to better fit. In the current study, the BIC was lowest for the three-class solution, whereas the five-class solution had the lowest AIC. The four-class model had the second lowest values in both instances. Entropy reflects the quality of the classification, where a value of 0 reflects randomness and a value of 1 corresponds to a perfect classification. The four-class model had better scores for entropy than the three-class model and the scores for the five-class model were even higher. The choice between the models was further based on a Vuong–Lo–Mendell–Rubin likelihood ratio test, demonstrating significantly better fit for the model with four classes.
compared to the three-class model. The five-class solution did not fit the data better than the four-class model. The four-class model was thus chosen. It should be noted that the analysis did not identify any problems with correlated bivariate residuals with regard to the four-class solution. The assignment of individuals into the specific outcome profiles was based on probabilities, meaning that individuals were allocated to the class to which they had the highest probability of belonging.

Table 3. Crude and Adjusted Associations Between Placement in OHC and Outcome Profiles in Midlife.

| Outcome Profile (Ages 39–55)/Sample | All (n = 12,737) OR (95% CI) | Men (n = 6,410) OR (95% CI) | Women (n = 6,327) OR (95% CI) |
|-------------------------------------|-------------------------------|-----------------------------|-------------------------------|
| 1. e Crude                          | 2.34 [1.97, 2.74]             | 2.11 [1.66, 2.67]           | 2.60 [2.01, 3.37]            |
| Confounding percentage              | 58.0%                         | 64.9%                       | 53.6%                        |
| Adjusted                            | 1.43 [1.19, 1.72]             | 1.30 [1.01, 1.67]           | 1.56 [1.19, 2.05]           |
| 2. SU Crude                         | 2.35 [1.93, 2.86]             | 2.14 [1.62, 2.83]           | 2.56 [1.93, 3.39]           |
| Confounding percentage              | 49.5%                         | 54.6%                       | 46.9%                        |
| Adjusted                            | 1.54 [1.24, 1.90]             | 1.41 [1.05, 1.90]           | 1.65 [1.22, 2.22]           |
| 3. eSUM Crude                       | 4.70 [3.74, 5.90]             | 3.82 [2.74, 5.32]           | 5.66 [4.11, 7.78]           |
| Confounding percentage              | 41.7%                         | 46.1%                       | 37.1%                        |
| Adjusted                            | 2.47 [1.93, 3.15]             | 2.06 [1.45, 2.93]           | 2.97 [2.11, 4.19]           |

Note. Results from multinomial logistic regressions based on the Karlson/Holm/Breen method. Adjusted models control for sex (only in full sample), parental social class in early childhood, and years in household poverty in early childhood. Confounding percentage refers to total confounding attributable to observed confounders and is based on the percentage change between crude and adjusted log-odds (not shown in table due to space shortage). OHC = out-of-home care; OR = odds ratio; CI = confidence interval; Base outcome (OR = 1.00) = E/comparedly higher levels of educational attainment; e = comparably lower levels of educational attainment; SU = comparably more social assistance recipiency/unemployment; eSUM = comparably lower levels of educational attainment and comparably more social assistance recipiency/unemployment/mental health problems.
Figure 1 shows the identified outcome profiles. The largest class, consisting of 60% ($n = 7,604$) of the sample, was characterized by having comparably higher levels of educational attainment in adulthood (E), whereas 21% ($n = 2,670$) of the individuals were found in the class characterized by comparably lower levels of educational attainment (e). Two classes refer to various forms of coexisting disadvantage. Approximately 14% ($n = 1,728$) were found in the class characterized by comparably more social assistance recipiency and unemployment (SU), and around 6% ($n = 735$) of the sample were located in a class with comparably lower levels of educational attainment and comparably more social assistance recipiency, unemployment, and mental health problems (eSUM).

Table 3 presents the results of multinomial regressions estimating the crude and adjusted ORs between OHC experience and outcome profiles. It also reports the degree to which the confounding factors account for the difference between the crude and adjusted associations. Compared to same-aged peers with no placement in OHC, Table 3 shows that having experience of OHC was associated with a 2-fold elevated odds ($OR = 2.34, 95\% CI [1.97, 2.79]$) of ending up in the profile characterized by comparably lower levels of educational attainment ($e$), whereas the base outcome characterized by comparably higher levels of educational attainment ($E$). OHC experience was also associated with a 2-fold elevated odds ($OR = 2.35, 95\% CI [1.93, 2.86]$) of having coexisting disadvantage in the form of comparably more social assistance recipiency and unemployment (SU) in midlife. Furthermore, being placed in OHC was associated with a nearly 5-fold elevated odds ($OR = 4.70, 95\% CI [3.74, 5.90]$) of being found in the most disadvantaged class, here characterized by coexisting disadvantage in the form of comparably lower levels of educational attainment, and comparably more social assistance recipiency/unemployment/mental health problems (eSUM). The patterns found in the sex-combined analysis remained when analyzing men and women separately.

Adjustments for confounders reduced the crude association somewhat, but OHC experience was still associated with substantially elevated odds ($OR = 1.43, 95\% CI [1.19, 1.72]$) for ending up in the outcome profile characterized by lower levels of educational attainment ($e$) and the coexisting disadvantage-class characterized by more social assistance recipiency and unemployment (SU; $OR = 1.54, 95\% CI [1.24, 1.90]$). The adjusted OR for being found in the coexisting disadvantage-class characterized by comparably lower levels of educational attainment and comparably more social assistance recipiency/unemployment/mental health problems (eSUM) was substantially reduced. Yet, having experiences of OHC were still associated with a 2-fold elevated odds ($OR = 2.47, 95\% CI [1.93, 3.15]$) of belonging to the most disadvantaged outcome profile. Sex-stratified analyses did not fundamentally alter these associations. All in all, the adjusted models reduced the ORs, but the trend of significantly elevated odds for those with experiences of OHC ending up in various forms of disadvantaged outcome profiles in midlife remained.

Looking at Table 3, we see that the confounding effects of the unadjusted ORs were rather strong, ranging from 41.7% for the most disadvantaged outcome profile (eSUM) to 58.0% for the outcome profile related to less education ($e$). Regardless of outcome profile, the confounding percentage was larger for men (46.1–64.9%) compared to women (37.1–53.6%). While sex only accounted for less than 1% of the total confounding, household poverty in early childhood was by far the most prominent confounding factor (not shown in table due to space considerations). In the full sample, household poverty accounted for most of the confounding effects related to the $e$- (54.1%), SU- (58.6%), and eSUM-profile (59.9%). Sex-stratified analyses did not fundamentally alter this pattern. Household poverty in childhood accounted for 54.4–62.1% and 56.4–62.2% of the total confounding in men and women, respectively.

Discussion

By utilizing Swedish large-sample prospective birth cohort data (including nearly 900 children with the experience of OHC), this study examines the indications of developmental continuity or discontinuity of disadvantage reaching from childhood into the middle age for children with and without experience of OHC. The results show that inequalities, as reported from studies targeting OHC children in young adulthood (Goemans et al., 2016), are also present in midlife, thus lending support to the hypothesis of a developmental continuity of childhood disadvantage extending into middle age (Ferraro, Schafer & Wilkinson, 2016; Ferraro et al., 2009). Even after adjustments for the birth family’s social status and indications of household poverty in early childhood, cohort members with a history of OHC had elevated odds for having comparably lower education ($e$), comparably more social assistance in combination with comparably higher levels of unemployment (SU), and of belonging to the most disadvantaged outcome profile (eSUM). These elevated risks echo predictions from cumulative inequality theory, which suggest that inequality develops across life domains (Ferraro & Shippee, 2009). Since OHC alumni typically are nested within broader child maltreatment populations, our findings correspond to the results of Widom and colleagues, for example, who reported that U.S. children with experiences of abuse/neglect face poor economic and mental health outcomes in early midlife (Currie & Widom, 2010; Sperry & Widom, 2013). There were no notable gender differences, which are in line with the results reported by Viner and Taylor (2005).

However, the results should not overshadow the fact that two thirds (67%) of OHC alumni did not belong to the two most disadvantaged outcome profiles in midlife: SU and eSUM (non-OHC peers 82%). Hence, while children with experience of OHC are strongly overrepresented in subgroups with indications of social marginalization or serious health problems (Viner & Taylor, 2005; Zlotnick et al., 2012), a majority of them seem to do reasonably well as adults. In sum, the risk for poor developmental outcomes extending into midadulthood may thus, for a
sizable minority of individuals, be relatively consistent across Western European and North American settings.

Naturally, our findings raise a host of questions which warrant examination in future studies. While general cumulative inequality theory holds that childhood conditions are important for explaining adult functioning and well-being (Ferraro & Shippee, 2009), the main questions concern the mechanisms behind the results. For the purposes of the current study, mechanisms related to the social imprint hypothesis (Bäckman & Palme, 1998) may provide some clues. This hypothesis implies that persons with adverse childhood living conditions, often coupled with trauma experiences, will be more vulnerable than others to risks and stress in adult life. Adverse life experiences in childhood may activate unfavorable life-course developmental pathways, leading to higher risks of poor health and social marginalization in adulthood (e.g., through poor school performance, low education, poor attachment to or early exclusion from the labor market, and high-risk life styles; Ferraro et al., 2016; Vinnerljung, Brännström, & Hjern, 2015). By such background, it is not surprising that resource deficiencies related to OHC exposure may trigger these children to struggle throughout childhood, adolescence, and adulthood. However, other studies have found strong links between adverse childhood experiences and midlife health, transmitted independently of adult social conditions through a strained biological stress response system related to childhood exposure to chronic stress. These biological changes may also have affected cognitive development in childhood, contributing to poor school/educational performance and low socioeconomic status in adulthood (Solís et al., 2015). This “biological imprint” hypothesis (Bäckman & Palme, 1998) needs to be addressed in future studies of long-term development in OHC children.

We know from other research that disadvantaged outcomes often are temporary for the individual (Korpi et al., 2007). It therefore seems worthwhile to examine midlife outcomes not as events but as a period with a focus on the timing and duration of disadvantage. Such analyses may nuance or even alter the picture produced by the current study. Another step would be to examine possible mediators, for example, school performance (Forsman, Brännström, Vinnerljung, & Hjern, 2016). Analysis of mediators have the potential to provide valuable information about modifiable risk factors, which is of fundamental importance when developing successful social prevention/intervention programs aiming at improving OHC children’s transitions into adulthood (Ferrer-Wrader, Stattin, Lorente, Tubman, & Adamson, 2004).

**Strengths and Limitations**

The strengths of this study include its prospective design, the large birth cohort sample (including a sizable number of children with OHC experience), the 55-year follow-up time (to our knowledge, longer than any previous prospective study in the literature), the use of national register data with low attrition, the emphasis on examining groupings of midlife outcomes during a longer period (ages 39–55, i.e., 17 years), controls of robust socioeconomic confounders related to the birth home, and temporal ordering of the variables of primary interest. Set against these strengths, it should be noted that all register-based studies have inherent shortcomings, and our’s is not an exception. They provide an “aerial view” of complex life-course processes. Regrettably, data that could be vital for our understanding of OHC alumni’s midlife development are often outside the scope of register-based studies. Examples of such data include social and martial support, psychosocial working conditions, and life satisfaction. Moreover, this study was not able to capitalize on other registers covering data from other important life domains (including, but not limited to, exposure to crime and housing conditions) and utilizing more detailed information about, for example, duration of means-tested social assistance recipiency.

Another shortcoming concerns the lack of more detailed data on children’s OHC experiences. Knowing to what extent cohort members had experienced stable or unstable OHC, and high- or low-quality care, would probably have promoted our understanding of OHC alumni’s transitions into adulthood.

**Implications**

This study provides an empirical basis for claiming that children with OHC experience have elevated risks of facing poor outcomes also in middle age and that the elevated risks are particularly pronounced for groupings of adverse outcomes. The latter finding should be of interest for both policy makers and practitioners since society de facto has invested heavily in attempts to improve the life chances of these children. What could make a difference in a long-term perspective? Currie and Widom (2010), for example, speculate that poor midlife economic outcomes in maltreated children may partially be explained by poor educational attainment. Several Swedish national cohort studies indicate that poor school and educational performance are the by far strongest predictors of OHC alumni’s social, economic, and health-related outcomes in adulthood (e.g., Brännström, Vinnerljung, & Hjern, 2016; Vinnerljung et al., 2015). Since OHC children in care tend to substantially underperform in the educational system compared to peers with similar cognitive capacity, investing in school/educational support while they are in societal care is a credible strategy (Forsman & Vinnerljung, 2012; Vinnerljung et al., 2010). Another pathway is to provide effective support during the transition from care to adulthood. Such interventions seem to make a difference in several life areas, especially for educational attainment (Courtney & Hook, 2017).

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