Unaccompanied Evacuation and Adult Mortality: Evaluating the Finnish Policy of Evacuating Children to Foster Care During World War II

Torsten Santavirta, PhD

Objectives. I examined associations between evacuation of Finnish children to temporary foster care in Sweden during World War II and all-cause mortality between ages 38 and 78 years.

Methods. I used a Cox proportional hazards model to estimate mortality risk according to whether the individual was evacuated during childhood or not. I used within-sibling analysis to control for all unobserved socioeconomic and genetic characteristics shared among siblings. Individual-level data for Finnish cohorts born in 1933 to 1944 were derived from wartime government records, Finnish census data from 1950 and 1970, and death cause registry from 1971 to 2011.

Results. I found no statistically significant association between evacuation and all-cause mortality when all exposed individuals were included in the analysis. However, subgroup analysis showed that men evacuated before age 4 years had a 1.31 higher mortality risk (95% confidence interval = 1.01, 1.69) than their nonevacuated counterparts.

Conclusions. In the aggregate, individuals do not have elevated mortality risk as a consequence of foster care during early childhood owing to the onset of sudden external shocks (e.g., wars). (*Am J Public Health.* 2014;104:1759–1765. doi:10.2105/AJPH.2014.301939)

The unaccompanied minors displaced because of armed conflicts, human rights abuses, and natural disasters are a particularly exposed group of refugees. According to the United Nations Refugee Agency,[1] unaccompanied minors tend to account for roughly 2% to 5% of each refugee population and, in 2012, more than 21 000 children lodged asylum claims. A feature common to all forms of family disruption is that the policies aimed at remediating the children deal with 2 competing goods: family preservation and child protection. Although adverse childhood experiences such as wars and natural disasters, as well as the child neglect that may follow from these, are harmful to child development,[2–6] separation from one's biological parents is known to be traumatic as well.[7–12] Determining the size and the direction of long-term health consequences of interventions that aim at remediating children who face family disruption is important for the social and medical sciences and policy.

During World War II, between 1941 and 1945, roughly 49 000 Finnish children aged between 1 and 10 years from the whole range of socioeconomic backgrounds were evacuated to Swedish foster families for an average period of 2 years. In 1941, the Finnish government stated the following eligibility criteria to screen the most exposed families: (1) family displaced from the areas ceded to the Soviet Union in 1940 (Karelia), (2) father was wounded in battle, (3) family's home destroyed in bombings, and (4) father had died in the war or parents were lost in bombings.[13] Children of mothers working full time or those at risk for air raids were also considered eligible from 1942 onward. This policy of evacuation to foster care offers a fruitful setting to study the long-term consequences of removal from the biological family and placement in foster care as a result of war or other external causes.

From a life course epidemiology perspective, the examination of the chronic disease risk of removal from one's biological family and placement in foster care in a foreign country during early childhood (i.e., an environmental intervention shifting most aspects of the family environment, including language, family income, parenting strategies, and neighborhood peer quality) is intriguing. A priori, the question of the direction of any potential causal effect of the intervention is nontrivial because both family preservation and children's protection from the adversities related to war (air raids, malnutrition, death of family members) cannot be satisfied at the same time. Thus, the aggregate effect of evacuation may be protective or adverse depending on which of the 2 conflicting needs outweighs the other or null if they cancel each other out.

The main challenge to estimating the effect of foster care placement on life outcomes is to identify a credible comparison group. Both the earlier mentioned eligibility criteria of the program and empirical evidence[13,14] suggest that confounding bias may contaminate means comparisons, that is, children from more adverse backgrounds participated in the program and may have had worse outcomes than the nonexposed children regardless of exposure. This confounding problem and the use of small and unrepresentative samples are the foremost reasons for why the association between the Finnish policy of evacuation to foster care during World War II and life outcomes remains incompletely characterized.[15–18]

This cohort study used a stable within-sibling design to evaluate the associations between evacuation to temporary foster care during early childhood and all-cause mortality between ages 38 and 78. For this purpose, I obtained representative data for the whole Finnish population of cohorts born between 1933 and 1944 and followed up to adulthood. The research design substantially reduced the confounding bias by holding constant all observable and unobservable aspects of the family environment shared among the siblings, in addition to 50% of their genome.[19]

METHODS

The analysis was based on a representative 10% sample of households drawn from the 1950 Finnish Census of Population (which resulted in 411 629 individuals from 114 000 households in 392 municipalities), which was the first full census implemented in Finland. Statistics Finland drew this sample in 1997 and identified the social security number (issued during the last years of the 1960s) of each individual in the sample in the Population Register to allow these historical census data to be merged with other, more recent register data sets containing information on the same individuals.

The study sample included the relevant child evacuee cohorts, born in the period between January 1, 1933, and December 31, 1944, who participated in the 1950 census sample and were sampled into the followed-up 10% (n = 71 788). Those individuals in the study sample who were evacuated to foster care in Sweden during World War II (n = 2245) were identified in the Finnish National Archive's complete wartime registry of child evacuees. All sibling pairs in the sample were identified by means of family and household identifiers. To construct family background covariates, the individuals in the sample were also linked to their parents and siblings born before the oldest cohort included in the sample by means of the family identifier combined with a variable for family status of each member of the family. The 1970 Finnish census and the National Death Cause Registry between 1971 and 2011 (both provided by Statistics Finland) were linked to the study sample on the basis of social security number. The individuals whose family identifier was missing (n = 1136) and those who had either died or emigrated before the 1970 census (n = 4037), were dropped from the sample. Moreover, those who were known to have died after 1971 but before age 38 years, at which age follow-up began, were also dropped (n = 562). The analytic sample consisted of 66 053 individuals of whom 1998 had been evacuated to foster care in Sweden during World War II.

Measures

I defined exposure as an indicator variable; participants obtained a value of 1 if they had been evacuated to foster care in Sweden during World War II according to the complete child evacuee registry of the Finnish National Archives and a value of 0 otherwise.

The outcome of interest was all-cause mortality based on death records between 1971 and 2011. Mortality follow-up began at age 38 years for everyone and continued until the end of 2011, which for the oldest individual was age 78 years. The Death Cause Registry obtained from Statistics Finland contained information on the exact date and cause of death coded by the 8th, 9th, or 10th revisions of the *International Classification of Diseases and Deaths* (*ICD*) with coding of causes made comparable across *ICD* revisions (the exact birth date was available from the 1950 census sample).[20–22] I also investigated cause-specific mortality from cardiovascular diseases (for the *ICD-10,* I00-I425, I427-I99).

I obtained family background characteristics from the 1950 census, capitalizing on the fact that it contained retrospective questions aimed at surveying the family conditions before the outbreak of the war (i.e., as of September 1, 1939). Father's socioeconomic status as of 1939 (if missing, replaced by mother's socioeconomic status), was measured as an indicator variable for each class (i.e., entrepreneurs, white-collar workers, blue-collar workers, assisting family members, and unemployed or out of labor force). I defined parental education as whether either the father or the mother had continued education past primary school. I calculated the number of children in the family as of 1940 on the basis of the birth dates of each child in the family.

Descriptive variables extracted from the Finnish National Archives were duration of evacuation and age at evacuation, measured by use of birth date, date of evacuation, and date of return.

Statistical Analysis

I used Cox proportional hazards regression to estimate all-cause and cause-specific mortality beginning at the day the person turned age 38 years until the age of death or until the end of follow-up (December 31, 2011), which for the oldest individual was age 78 years. I censored individuals who were alive as of December 31, 2011, on that date. In the cardiovascular diseases (CVD) analysis, I censored individuals who died from causes other than CVD on the date of death.

I performed the analyses using Stata, version 12 (StataCorp, College Station, TX) and present hazard ratios along with 95% confidence intervals. The empirical strategy was to analyze the entire sample using conventional cohort analyses and then to compare these findings with results from within-sibling analyses. Throughout the analyses, I took into account the interdependence between siblings by clustering the standard errors at the family level.

Cohort Analysis

I estimated the Cox proportional hazards regression assuming a common baseline hazard for all individuals in the sample. All estimations were conducted separately for women and men. Any selection into the evacuation program on the basis of family background covariates was a concern as regards potential confounding because such covariates are likely to be correlated with the outcome as well. To adjust for this in the cohort analysis, I included family background covariates that were by definition preintervention variables: father's socioeconomic status as of 1939, parental education, and number of children in the family as of 1940. I adjusted for native language by including an indicator variable for whether the family spoke native Swedish, age by including birth cohort indicator variables, parity by including birth order indicator variables, and preintervention region of residence by including indicator variables for county of residence as of September 1, 1939 (including prewar Karelia as 1 county).

I omitted some of the government-stated eligibility criteria into the program, namely whether the father had died or was wounded in the war and whether the mother was working full time (I indirectly adjusted for being subject to air raids and displacement from the region ceded to the Soviet Union [Karelia] by including county indicator variables). Owing to the omission of these and other potential confounding factors related to family background, a within-sibling analysis was warranted.

Within-Sibling Analysis

I estimated a fixed-effects model stratified at the family level using a subsample of individuals who had at least 1 full sibling within the relevant cohorts included in the data (n = 46 446): $A_{ij}(t; x) = A_{0j}(t)\exp(\beta x_{ij})$, where hazard A_{ij} of individual i belonging to family j is a function of time t and a vector of independent variables x and depends on a family-specific baseline hazard, $A_{0j}(t)$.[23] In other words, the baseline hazard within-siblings was fixed while allowing it to differ between individuals who were not siblings. Thus, all sibling-invariant factors are fixed in the within-sibling analysis (both the ones adjusted for in the cohort analysis and unobserved ones). The advantage of the within-sibling model is that all genetic factors that are shared by siblings (roughly 50% of all genetic factors) and the shared observed and unobserved family background characteristics are held constant. Within the sibling sample, 1321 sibling pairs were discordant for evacuee status (i.e., one of the siblings was evacuated and the other remained with the biological family during the war).

RESULTS

Table 1 presents the sample characteristics. A total of 16 294 deaths were recorded during the follow-up, of whom 11 182 were men. The mean follow-up time was slightly longer for women than men, both in the censored group and for those who died during the follow-up. Roughly 3% of the individuals in the sample were evacuated to foster care during World War II and spent on average roughly 2 years in foster care.

I found no association between evacuation to foster care during World War II and all-cause mortality during adulthood for either gender (model estimated separately for women and men) in the full cohort (Table 2).

I found no significant association between evacuation and all-cause mortality in the cohort (hazard ratio [HR] = 1.09; 95% confidence interval [CI] = 0.92, 1.30 for women, and HR = 1.03; 95% CI = 0.91, 1.16 for men) and within-sibling analyses (HR = 1.04; 95% CI = 0.78, 1.39 for women, and HR = 0.91; 95% CI = 0.72, 1.16 for men), using the sibling sample (n = 46 446). I derived the results for men and women from the same model by including both exposure and an exposure times gender interaction term. The interaction term was not significant in either the cohort or the within-sibling analyses, suggesting that gender did not modify the association between evacuation and adult mortality. Footnote to Table A in the Appendix (available as a supplement to the online version of the article at http://www.ajph.org) describes more in detail how the within-sibling analyses were estimated.

TABLE 1—Sample Characteristics of 1933–1944 Cohorts of the 1950 Finnish Census of Population (Those Who Survived Until 1971)

	Women (n = 32 133)		Men (n = 33 920)	
Characteristic	No.	% or Mean (SD)	No.	% or Mean (SD)
Deaths				
Death				
All causes	5112	100.00	11 182	100.00
Cardiovascular disease	1382	27.00	4375	39.1
Mean years of follow-up				
Alive (censored)		35.16 (3.40)		34.93 (3.37)
Dead		25.10 (9.46)		23.49 (9.75)
Evacuation program				
Evacuation				
Not evacuated	31 225	97.17	32 830	96.79
Evacuated	908	2.83	1090	3.21
Duration of evacuation, y	904	1.81 (1.13)	1084	1.9 (1.15)
≤ 2	610	67.48	707	65.22
> 2	294	32.52	377	34.77
Age at evacuation, y	904	6.50 (2.59)	1084	6.28 (2.55)
2– < 4	181	20.02	219	20.20
4– < 7	309	34.18	426	39.30
7–11	414	45.80	439	40.50
Family background				
Socioeconomic status in 1939[a]				
Entrepreneur	8388	26.11	8984	26.49
White collar worker	3029	9.43	3316	9.77
Blue collar worker	9685	30.14	10 234	30.17
Assisting family member	2590	8.06	2688	7.93
Unemployed or out of labor force	8441	26.27	8698	25.64
Parental education[b]				
≤ primary school	29 885	93.00	31 381	92.51
Past primary school	2248	7.00	2539	7.49
No. of children in the family in 1940	32 133	1.61 (1.66)	33 920	1.65 (1.69)
≤ 1	17 722	55.15	18 139	53.48
2	5776	17.98	6323	18.64
≥ 3	8635	26.87	9458	27.88
Native language				
Finnish	30 195	93.97	31 785	93.71
Swedish	1938	6.03	2135	6.29

[a]Based on father's occupation; if missing it was replaced by mother's occupation.
[b]Highest level of schooling of either the mother or the father.

Although the main outcome of interest in this study was all-cause mortality, I analyzed a similar within-sibling model but using CVD mortality as the event and found no association for both women and men (HR = 1.14; 95% CI = 0.65, 2.02 for women, and HR = 0.96; 95% CI = 0.65, 1.42 for men).

When I estimated a model otherwise identical to the cohort analysis of the sibling sample (n = 46 446), that split exposure by age at evacuation into 3 indicator variables (each of which was interacted with gender)—evacuated at younger than 48 months, at age 48 to 83 months, or at age 84 months or older—the results for 1 subgroup stood out (Table 3). Men

TABLE 2—All-Cause Mortality at Ages 38–78 Years (1971–2011) for Finnish Children During World War II by Evacuee Status

Characteristic	Women (n = 32 133), HR (95% CI)[a]	Men (n = 33 920), HR (95% CI)
Evacuee status		
Nonevacuee[b]		
Evacuee	1.11 (0.96, 1.29)	1.04 (0.94, 1.15)
Parental education		
≤ primary school[b]		
Past primary school	1.06 (0.93, 1.20)	0.82 (0.75, 0.90)
Native language		
Finnish[b]		
Swedish	0.95 (0.82, 1.10)	0.81 (0.72, 0.90)
No. of children in 1940 (per 1-step)	0.97 (0.94, 1.00)	0.98 (0.96, 1.00)
SES in 1939		
Entrepreneur[b]		
White collar worker	1.06 (0.64, 1.75)	1.06 (0.74, 1.51)
Blue collar worker	1.12 (1.04, 1.21)	1.18 (1.12, 1.25)
Assisting family member	1.12 (1.00, 1.26)	1.08 (1.00, 1.17)
Unemployed or out of labor force	1.24 (1.15, 1.34)	1.30 (1.23, 1.37)

Note. CI = confidence interval; HR = hazard ratio; SES = socioeconomic status. Models adjusted for birth order, birth cohort, and county of residence (1939).
[a]Robust standard errors are adjusted for familial clustering.
[b]Omitted category.

who were younger than 48 months at the time of evacuation from their biological family had mortality risk 1.31 times higher (95% CI = 1.02, 1.69) than that of their nonevacuated counterparts, whereas I found essentially a zero association between evacuation and mortality among the older age groups. For women, none of the 3 age groups of evacuees had statistically significant higher mortality risk than their nonevacuated counterparts. Defining the event as CVD mortality did not yield statistically significant results for any of the 3 age-at-evacuation indicators for either gender. I performed the subgroup exposure analyses on the full cohort because the sample size (1321 discordant pairs) rendered a within-sibling analysis untractable. Tables B and C in the Appendix (available as a supplement to the online version of the article at http://www.ajph.org) report the coefficients of the cohort and within-sibling analyses.

DISCUSSION

These large, nationally representative longitudinal census data possessed many features that made them particularly well suited for evaluating long-term outcomes of the Finnish child evacuee policy. First, linking social security numbers to a random sample of the 1950 census allowed for unusually long follow-ups of the participants and thus avoided the problem of potential recall bias that arises when childhood characteristics are retrospectively retrieved. Second, the availability of a family identifier and family status of each family member in the 1950 census made the data suited for within-sibling analysis while also providing family background variables dating back to the period before World War II for the cohort analysis. Third, additional leverage was gained by linking this existing census sample with individual-level wartime data from a child evacuee registry.

When I defined exposure as an indicator variable obtaining value of 1 if the participant had been evacuated at some point during childhood, I found no significant association between evacuation and all-cause mortality in either the cohort analysis or the within-sibling analysis for either gender. Subgroup analysis splitting exposure into 3 categorical variables by age at evacuation, however, showed that boys evacuated before age 4 years had a mortality rate significantly elevated from that of their nonevacuated counterparts. I found no adverse association between evacuation and mortality for females in any of the age-at-evacuation categories.

Although the Finnish evacuation policy has been evaluated before, this study is the first to explore differences in mortality risk between

TABLE 3—Mortality Risk at Ages 38–78 Years (1971–2011) for Finnish Children During World War II by Evacuee Status and Age at Evacuation

	Evacuated Subgroup by Age at Evacuation		
Evacuee Status	< 48 Months, HR (95% CI)	48-83 Months, HR (95% CI)	≥ 84 Months, HR (95% CI)
Women (n = 22 421)			
Nonevacuee (Ref)	1.00	1.00	1.00
Evacuee	1.22 (0.82, 1.82)	0.93 (0.68, 1.28)	1.23 (0.9, 1.57)
Men (n = 24 045)			
Nonevacuee (Ref)	1.00	1.00	1.00
Evacuee	1.31 (1.01, 1.69)	1.01 (0.85, 1.21)	1.00 (0.83, 1.19)

Note. CI = confidence interval; HR = hazard ratio. Robust standard errors are adjusted for familial clustering. Impacts by gender were derived from 1 model by including interaction terms with 3 indicator variables for evacuation that each obtained a value of 1 if evacuation occurred within a particular age period (evacuated at age < 48 mo, 48–83 mo, or ≥ 84 months). The indicator variables (including 1 for the nonevacuees) were mutually exclusive and collectively exhaustive. The sample used in analyses included only those individuals who had at least 1 full sibling in the relevant cohorts (n = 46 466). The model adjusted for the family background covariates (socioeconomic status in 1939, parental education, no. of children in the family in 1940, native language), birth order, birth cohort, gender, and county of residence in 1939. Gender also interacted with the 5 categorical socioeconomic status variables included in the model.

children who were evacuated and those who remained in Finland during the war using representative registry-based data for the whole Finnish population. It is, moreover, the first sibling design in this context because all previous studies have relied on simple means comparison,[16–18] with the exception of a matching study matching the evacuees to controls on the basis of eligibility criteria and demographic characteristics.[15] The inconsistency in findings across previous studies is potentially explained by the use of small and unrepresentative samples and the lack of credible comparison groups.

The results of this study are at odds with those of Räsänen,[18] who documented lower adult CVD risk among evacuees originating from Kuopio county, Finland, as compared with a local comparison group, and with those of Alastalo et al.,[16] who found significant elevated risks for hypertension and coronary heart disease while sampling evacuees from Helsinki Birth Cohort Study (1934–1944). Another study by Alastalo et al.[17] that also sampled child evacuees from the Helsinki Birth Cohort Study did not, however, find any association between evacuation and all-cause mortality and cardiovascular mortality in adulthood. Elevated mortality risk for the youngest male evacuees has not been documented before.

Finding adverse results among the youngest evacuees is in keeping with findings from previous studies on the long-term consequences of parental loss during childhood, suggesting that timing of exposure is important,[7,12] but is, however, at odds with the findings of others.[24] Likewise, the observation of gender differences in mortality risk within the youngest group of evacuees are in line with studies finding higher risk of morbidity and mortality among men exposed to family disruption or displacement during childhood[7,11] while being at odds with others who have found a more adverse bereavement effect among women[25] or no sex differences.[26,27] Comparisons across different causes of family disruption warrant caution because previous studies on parental separation as an exposure for later life outcomes suggest that it matters what event separation is secondary to; for example, divorce has been shown to lead to different consequences than death[8,10,25,28] (and consequences vary by cause of death, for that matter[7]).

Recent studies by Saarela and Finnas[29,30] on other populations in Finland affected by the events of World War II, namely war veterans and adults internally displaced from areas ceded to the Soviet Union in 1940, have found no elevation in long-term mortality rates among the exposed groups as compared with their unexposed counterparts.

Limitations

Even though the data used in this study were of exceptional quality and geared toward the examination of the particular research question, they also have limitations. At least 4 potential concerns warrant discussion: potential confounding, selective mortality, statistical power, and measurement error in the explanatory variables.

First, within-sibling analysis adjusts for sibling-invariant aspects of the family background. Thus, the identifying assumption for a causal interpretation of the within-sibling estimate of evacuation is that exposure, in this case the parental decision to evacuate a specific sibling, was uncorrelated with unobserved sibling-specific endowments.[19,31] The family background (eligibility criteria) of each evacuee was well documented through the screening process, whereas neither the child evacuee registry nor historical accounts had much to say about selective behavior within families who evacuated only some of their children; the actual evacuation decision was considered to be a family matter.[32] A solution to this potential problem is to adjust for sibling-specific factors to reduce the amount of unadjusted child-specific potential confounders.[19] Aside from age, the sibling-specific variable adjusted for was birth order. Birth order is a potential confounder in almost any within-sibling research design dealing with interventions during early life and later life health because it has been found to be inversely correlated with education[33] and cognitive ability,[34] and these factors have been shown to predict later life health.[35]

Second, a potential weakness is that follow-up began at age 38 years; different associations might have been observed had the follow-up period started immediately after the war. The concern is that spikes in mortality rates among the Finnish youths during the war were induced by a shift toward right of the survival threshold on the health distribution as a result of, for example, deteriorating health care, which would imply that, observed later, the nonevacuees surviving the war would have better average health than the evacuees (cohort inversion), all other things being equal.[29,36] Evidence against this concern is that I observed no spikes in mortality rates in Finland among children aged 5 to 9 years in 1940 to 1944 as compared with children of the same age in 1935 to 1939 and in 1945 to 1949.[37]

Moreover, a mortality spike for a cohort (or group) does not necessarily imply cohort inversion because mortality rates could increase because of a negative shift in the complete health distribution. Assuming that this shift was at least in part permanent would lead to similar negative implications for short-term and long-term mortality outcomes (scarring).[36] Table D in the Appendix (available as a supplement to the online version of the article at http://www.ajph.org) compares those lost between 1950 and the start of follow-up at age 38 years to the analytic sample. The individuals lost before the start of follow-up (because migration or death) were more likely to be women, to have been evacuated, and to have been native Swedish speaking. However, small differences in socioeconomic background and parental education were found.

Third, low statistical power is a limitation that most studies using sibling designs with relatively small samples have to deal with. In particular, in studies that fail to detect a significant association between X and Y, one would like to know whether the estimate is an imprecisely estimated zero or whether there actually is enough power to detect a reasonable effect size. Even though the total number of sibling pairs in the analytic sample was quite large with 43 665 pairs, neither, both, or 1 of whom was evacuated, only the 1321 pairs discordant for evacuation status contribute to the identification of the population parameters (Table E in the Appendix, available as a supplement to the online version of the article at http://www.ajph.org). The power calculation for a sibling design with varying numbers of siblings per family and time-to event outcome is nontrivial.[38] Thus, the absence of a formal test of statistical power deserves caution in the interpretation of the within-sibling results.

Ultimately, within-sibling analysis estimates tend to be more attenuated than cohort analysis estimates because they are more susceptible to measurement error in the exposure variable.[39,40] As for the evacuation parameter, it should be less of a concern because the complete child evacuee registry was matched to the census sample on the basis of all 3 variables: first names, last name, and date of birth. I found only 87 ambiguous matches indicating spelling errors in the individuals' names in either or both of the data sources while linking the entire wartime registry—48 628 child evacuees—to the 71 788 individuals of the 1950 census sample. These cases were kept in the analysis, but dropping all 87 ambiguous observations did not change the results qualitatively.

Conclusions

This study provides new evidence of the association between the Finnish child evacuation policy during World War II and mortality rates during adulthood. Overall, the evacuation was not found to be a significant predictor of adult mortality in the aggregate when exposure was defined in a crude albeit resultwise conveniently summarizable way (i.e., an indicator variable obtaining a value of 1 if the individual was evacuated). An important result that did not show in the whole sample analysis but was picked up by the exposure subgroup analysis was that boys evacuated before age 4 years had a roughly 1.3 times higher mortality rate than their nonevacuated counterparts. On the basis of this result, it seems crucial to consider the timing of exposure and its coincidence with developmental periods in the study of the effect of evacuation and fostering policies on life outcomes; more causal work is needed on this issue. Finally, even though the temporary evacuations studied here took place more than half a century ago, the results may have contemporary value for settings such as the child refugees fleeing from armed conflicts who are separated from their parents. Few features of the Finnish evacuation policy suggest that the results in this study should be bound to the particular circumstances of World War II.[14] ■

About the Author

Torsten Santavirta is with the Swedish Institute for Social Research, Stockholm University, Stockholm, Sweden.

Correspondence should be sent to Torsten Santavirta, Universitetsvagen 10F, 10691, Stockholm University, Sweden (e-mail: torsten.santavirta@sofi.su.se). Reprints can be ordered at http://www.ajph.org by clicking the "Reprints" link.

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Human Participant Protection

The study involved register data only. The Ethics Committee of Statistics Finland approved the study design, and data were linked with the permission of appropriate authorities.

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