

Intercountry Adopted Children as Young Adults—A Swedish Cohort Study

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In a national cohort study, the family and labor market situation, health problems, and education of 5,942 Swedish intercountry adoptees born between 1968 and 1975 were examined and compared with those of the general population, immigrants, and a siblings group—all age matched—in national registers from 1997 to 1999. Adoptees more often had psychiatric problems and were longtime recipients of social welfare. Level of education was on par with that of the general population but lower when adjusted for socioeconomic status.

Intercountry adoption is a rather young procedure, which was initiated after World War II with the aim of taking care of abandoned children from war-torn countries such as Germany, Greece, and the Baltic states (Tizard, 1991). Other European nations and the United States have been the main receiving countries (Tizard, 1991). After the Korean war, South Korea gradually became increasingly important as a source country of intercountry adoptions, accounting for more than half of all intercountry adoptions in the United States by the 1970s (Selman, 1998). Thus, the first decades of intercountry adoptions were inspired by an ambition to take care of orphaned children. Gradually, the motive for adoptions changed increasingly toward assisting childless couples in Western countries.

It has been estimated that the total number of intercountry adoptions during the 1980s was between 170,000 and 180,000 (Kane, 1993). Estimates from seven major receiving states for the 1990s show that the number seems to be increasing (Selman, 2001). These figures highlight the importance of conducting follow-up studies of adjustment in intercountry adoptees.

The above-mentioned shift in motives for adoption implies that new ethical aspects have been brought into focus. Thus, intercountry adoptions have been criticized from multifarious perspectives (see, e.g., Triseliotis, 2000). For instance, it has been argued that the procedure is a new form of colonialism (Tizard, 1991). Trafficking in children has been unveiled in some countries (Tizard, 1991). The adoptees' loss of ties to the history and culture of their birth country has been highlighted, especially so in Australia (Maluccio, Ainsworth, & Thoburn, 2000). Other authors have argued that intercountry adoptees may look upon themselves as outsiders in the receiving country (e.g., McRoy, Zurcher, Lauderdale, & Anderson, 1982). It has also been argued that a source country such as South Korea may be discouraged from developing an adequate child welfare program as a side effect of intercountry adoptions (Sarri, Baik, & Bombyk, 1998).

For health professionals and social workers, the psychological and social adjustment of adoptees raises important issues. Several relevant studies have been published, mainly on the situation for children

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and adolescents (for references, see the Discussion section below). Because maladjustment during one phase of life may not necessarily imply problems in other phases (Bohman & Sigvardsson, 1980, 1990), it is important to follow up earlier results into young adulthood and parenting.

Sweden has a special position among receiving countries due to its high adoption rates (adoptions per 100,000 inhabitants) and adoption ratios (adoptions per 1,000 live births; Selman, 2001). The highest levels occurred around 1980 with an adoption rate of 22.7 in 1980 and an adoption ratio of 17.4 in 1978 (Selman, 2001). In Sweden, the proportion of intercountry adoptees who have reached adulthood is now large enough for researchers to be able to conduct evaluations of various aspects of adjustment. Thus, in this study we examined family situation, education, status with respect to the labor market, and health problems (disabilities and psychiatric indicators) in Swedish young adult intercountry adoptees.

Method

Sweden has a long tradition of maintaining national registers with high-quality data regarding socioeconomic as well as health indicators on the entire Swedish population. The key to these registers is the unique personal identification number that follows each Swedish resident from birth to death. This study is based on data from these national registers held by the Swedish National Board of Health and Welfare and Statistics Sweden.

Study Groups

The study population was created from the entire Swedish population born between 1968 and 1975 who were recorded to be living in family households in the Swedish Population and Housing Census of 1985 and were still alive and residents in Sweden in December 1998.

Data from the Swedish Population and Housing Census of 1985 in combination with the Multi-Generation Register and the Total Population Register of Statistics, in Sweden, 1998 were used to define the different study groups according to the following criteria:

- Intercountry adoptees were indirectly identified by having a record of having been born outside of Europe, having immigrated to Sweden before 7 years of age, and having parents (one or two) who were recorded to have been born in Sweden without any record of emigration or immigration after 1968.
- A general population of children born in Sweden to Swedish-born parents without records of emigration or immigration after 1968 was created as the main comparison group.
- Children in the general population who were recorded to have the same mother and/or the same father as a child who fulfilled the criteria of intercountry adoptees in the cohorts born between 1968 and 1975 were excluded from the general population and analyzed separately as a siblings group.
- Children who were recorded to be born outside of Sweden and had settled in Sweden before their 7th birthday, but were recorded to have a mother who was born in their own continent of origin, made up the immigrant comparison groups. This study group was divided in two categories: European and non-European.

Sociodemographic Characteristics of the Study Groups

Socioeconomic indicators of the household of the parents and demographic indicators concerning the study population were obtained from several sources:

- Information on year of birth, sex, socioeconomic status (SES) of the household during childhood, and housing situation was obtained from the Swedish Population and Housing Census of 1985. SES was defined according to a classification used by Statistics Sweden (1982), which is based on occupation of the head of the household but also takes educational level of occupation, type of production, and position at work into account.
- Education of the oldest female below 65 years of age in the household in 1985 was obtained from the 1998 Swedish education register.
- Information about total income and social welfare benefits received by the head of the household in 1985 was obtained through linkage to the Statistics on Income and Wealth, 1998.

There were 5,942 individuals in the adoptee study group: 3,237 individuals were born in the Far East (2,658 were born in South Korea), 1,422 in South Asia, 871 in Latin America, and 412 in Africa. In the other study groups there were 1,884 siblings, 8,834 European immigrants, 3,544 non-European immigrants, and 723,154 individuals in the general population.

There were significant differences in the sociodemographic characteristics of the five study groups. The average age of the intercountry adoptees and the immigrant study group was lower than that of the general population, and the mothers in the adoptee and the sibling groups tended to be older than those in the other groups. The adoptee and the sibling groups had the most favorable socioeconomic situation, whereas the immigrants studied, and particularly the non-Europeans, had a less favorable socioeconomic situation than the general population. Immigrants most often resided in the

three largest metropolitan areas in Sweden (Stockholm, Göteborg, and Malmö), whereas this was less common among the intercountry adoptees compared with the general population.

Outcome Variables

Outcome variables regarding family status, position in the labor market, and health-related benefits were created from data in the Statistics on Income and Wealth, 1998. The number of months of having received social welfare benefits was identified in the Register of Social Welfare Benefits. Based on these data, an outcome variable was constructed identifying individuals who had received social welfare for a long period, thus indicating a substantial self-support problem. Because temporary, short spells of social welfare are relatively common among young Swedes (Salonen, 1993), the cutoff point was set at greater than 6 months during 1998.

Outcome variables related to psychiatric illness and addiction were obtained through individual record linkage to the Swedish Hospital Discharge Register for the years 1997–1999. The variables were defined according to the ICD 10 (*International Statistical Classification of Diseases and Related Health Problems*, 1992). The outcomes from hospital discharges were defined as having at least one hospital admission that fulfilled the following criteria: (a) any psychiatric disorder (a main diagnosis of F00-F09, F17, or F20–99), (b) drug abuse (a main or contributory diagnosis of F11, F12, F14, F16, F19, Z503, or Z722), or (c) alcohol abuse (a main or contributory diagnosis of F10, K70, G621, I426, or K294).

Statistical Method

Multivariate analyses were conducted using logistic regression with dichotomized outcome variables. Birth year was entered as a continuous variable in the regression models. Other sociodemographic variables were entered as dichotomized variables into the models. Dummy variables were created for income (four categories) and SES (six categories). The SPSS software package, Version 10.0, was used in all statistical analyses.

Results

Basic summary statistics—that is, rates of the outcome variables (family situation, education, status with respect to the labor market, and health problems)—are given in Table 1. To provide a deeper analysis, we studied each set of outcome variables using logistic regression. The analysis concerning family situation is presented in Table 2. The adoptees were less frequently married than the comparison individuals of the same age, and fewer adoptees had children. More adoptees than comparison individuals were living with their parents. Of the male adoptees

who were parents, 33.2% were living in households without children compared with 20.8% in the general population and 18.4% in the siblings group. Of the female adoptees who were parents, 28.1% were living as single parents compared with 19.4% in the general population and 17.8% in the siblings group. In an interaction analysis it was demonstrated that, in comparison with the same sex in the majority population, adopted men had higher odds of living with their parents than adopted women. Moreover, nonsignificant trends were found concerning other gender differences; male adoptees had lower odds of being married and of having a child than female adoptees.

The analysis of education is presented in Table 3. The adoptees had reached the same educational levels as individuals of the same age in the population as a whole, but with adjustment for SES, there was a marked difference, indicating that the adoptees had not reached the level expected for their socioeconomic background. The outcome after adjustment to socioeconomic variables was close to the findings in the immigrant groups.

The percentage of each study group with a university education—in relation to maternal education—is presented in Table 4. The proportion of adoptees having reached university level was almost the same irrespective of maternal educational level, whereas the proportion increased in all other groups with increasing level of maternal education. The analysis of establishment in the labor market (unemployment, workforce status, and dependency on social welfare) is presented in Table 5. Long periods of living on social welfare were more common among adoptees as was unemployment. Both these trends were more marked when SES was adjusted for. In Table 5, a separate model (Model 2) adjusting for age, sex, education, and place of residence is presented for outcomes related to establishment in the labor market. It is worth noting that—for the adoptees—the odds ratios (ORs) were only marginally changed when the model was adjusted for the educational level of the adoptees (Model 2). After adjusting the analysis for family socioeconomic indicators (Model 3), we found that the ORs of the adoptees and the ORs of the two immigrant study groups were very similar for all three outcomes. In an interaction analysis it was demonstrated that, in comparison with the same sex in the majority population, adopted men had lower odds of being included in the workforce than did adopted women.

The analysis of problems with poor health is presented in Table 6. After adjustment for SES, sick pension, disability benefit, and long-term sick leave were all more frequently registered in the adoptee

Table 1
Rates (in Percentages) of Outcome Variables by Sex in the Different Study Groups

Variable	Men					Women				
	Swedes (n = 371,920)	Adoptees (n = 2,062)	Siblings (n = 1,073)	Europeans (n = 4,449)	Non-Europeans (n = 1,855)	Swedes (n = 351,234)	Adoptees (n = 3,880)	Siblings (n = 811)	Europeans (n = 4,385)	Non-Europeans (n = 1,689)
Family situation										
Household										
Couple with child	20.3	9.9	20.5	25.7	24.0	33.4	21.7	29.2	37.3	36.7
Single parent	0.4	0.3	0.1	0.7	0.3	7.2	7.8	5.1	14.6	7.9
Single-couple without child	62.6	68.4	67.4	55.9	38.1	50.5	58.0	55.4	38.5	27.9
Living with parents	16.7	21.4	12.0	17.7	37.6	8.9	12.5	10.4	9.6	27.5
Civil status										
Married	9.7	5.1	13.6	13.6	21.2	17.5	12.6	20.4	21.8	34.5
Divorced	0.8	0.7	0.8	2.3	2.4	2.0	1.8	1.6	5.4	4.5
Unmarried	89.5	94.2	85.5	83.7	76.4	80.4	85.6	77.8	72.7	60.9
Other	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1
No. of children										
0	78.1	87.5	81.7	66.5	76.0	62.9	73.0	71.5	50.7	62.0
1	12.8	8.8	10.5	17.4	14.1	17.7	15.6	14.5	19.9	18.6
2+	9.0	3.7	7.7	16.0	9.9	19.4	11.2	13.9	29.4	19.4
Education										
No information	0.2	0.4	0.0	0.6	0.6	0.2	0.2	0.0	0.5	0.5
Less than 9 years	0.1	0.1	0.0	0.7	0.3	0.1	0.1	0.0	0.6	0.5
9 years	11.7	12.8	7.1	21.8	26.0	10.5	9.5	5.6	20.5	18.4
10-11 years	36.4	28.3	22.6	42.3	28.6	31.1	27.4	21.9	36.5	28.8
12-13 years	22.3	32.0	19.2	17.5	26.7	23.6	28.8	16.1	20.5	32.0
University, 1-3 years	22.4	22.6	36.4	13.6	15.1	23.0	24.9	34.0	15.4	15.7
University, 4+ years	6.9	3.9	14.7	3.4	2.7	11.6	9.1	22.3	5.9	4.0
Indicators of position in the labor market										
In labor force in November 1998	77.1	63.7	73.7	67.5	54.4	70.4	62.8	69.3	61.3	51.0
Unemployed during 1998	23.8	31.9	17.9	27.8	28.9	34.8	36.5	27.7	40.3	39.3
Social welfare >6 months during 1998	6.6	12.4	3.5	17.7	29.9	8.0	11.1	5.9	19.0	30.6
Health problems										
Disability allowance	0.6	0.9	0.7	0.6	0.8	0.5	0.9	1.0	0.6	0.7
Sick pension	1.2	1.6	1.1	2.3	1.6	1.3	2.0	1.5	2.0	1.1
Long-term sick leave	0.6	0.5	0.1	1.1	0.5	0.8	1.1	0.6	1.3	0.9
Hospital discharge: psychiatric diagnosis	0.7	1.6	0.7	1.4	1.4	0.8	2.2	0.7	1.4	1.3
Hospital discharge: alcohol abuse	0.3	0.6	0.3	0.8	0.1	0.2	0.4	0.1	0.6	0.2
Hospital discharge: substance abuse	0.3	0.5	0.0	1.1	1.2	0.1	0.4	0.1	0.4	0.1

Table 2
Summary of Logistic Regression Analyses of Family Situation

Group	Having a child				Living with parents				Married			
	Model 1		Model 2		Model 1		Model 2		Model 1		Model 2	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Swedes		1		1		1		1		1		1
Adoptees	0.6	0.6–0.7	0.8	0.7–0.8	1.2	1.1–1.2	1.2	1.1–1.3	0.9	0.8–0.9	0.9	0.8–0.9
Siblings	0.5	0.4–0.6	1.0	0.8–1.1	0.9	0.8–1.1	0.9	0.8–1.1	1.2	1.1–1.4	1.2	1.0–1.3
European immigrants	1.4	1.4–1.5	1.2	1.1–1.2	1.3	1.2–1.4	1.2	1.1–1.2	1.1	1.1–1.2	1.1	1.1–1.2
Non-European immigrants	1.9	1.7–2.1	1.6	1.4–1.8	2.6	2.4–2.8	1.9	1.8–2.1	4.4	4.1–4.8	4.4	4.1–4.8

Note. Model 1 is adjusted for age and sex. Model 2 is adjusted for age, sex, own education, place of residence, socioeconomic status in 1985, maternal education, parental disposable income in 1998, and single adult households in 1985. OR = odds ratio; CI = confidence interval.

group than in the other study groups with ORs around 1.8. The interaction analysis showed that the OR for long-term sick leave in the adoptees was higher for men. The adoptees also more often displayed psychiatric indicators than did the other study groups when SES was adjusted for, with an OR of 2.9 for both psychiatric care and drug abuse and an OR of 2.4 for alcohol addiction.

Logistic regression models of potential adoptee risk factors (SES, geographic region of birth, and age on arrival in Sweden) are presented with family situation (see Table 7), educational achievement (see Table 7), establishment in the labor market (see Table 7), and health problems (see Table 8) as outcome parameters. In many respects, adoptees from the Far East had the most favorable outcomes. Being born in Latin America, Africa, or South Asia implied higher odds for a lowered educational level, for long periods of living on social welfare, and for hospital admissions related to alcohol abuse. Having arrived

in Sweden between 4 and 6 years of age was a risk factor, especially for having only a basic, primary, education (OR = 1.7); being unemployed (OR = 2.1); living for long periods on social welfare (OR = 2.0); having a higher frequency of psychiatric hospital admissions (OR = 2.2); and receiving a disability pension (OR = 1.7).

Discussion

The results of this study can be summarized in two ways: On the one hand, the young adoptees growing into adulthood have many similarities, on a group level, with the rest of the population of the same age. On the other hand, there are certain obvious differences, further highlighted by the comparisons with the biological children of the adoptive parents. The similarities are greater than the differences, but the differences are important, as they may give an increased understanding of the adoptees' life conditions

Table 3
Summary of Logistic Regression Analyses of Educational Achievement

Group	9 years or less				University			
	Model 1		Model 2		Model 1		Model 2	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Swedes		1		1		1		1
Adoptees	1.0	0.9–1.1	1.4	1.3–1.5	1.0	0.9–1.1	0.6	0.6–0.6
Siblings	0.5	0.4–0.6	0.9	0.7–1.0	2.2	2.0–2.4	1.4	1.3–1.5
European immigrants	2.2	2.1–2.3	1.5	1.4–1.6	0.5	0.5–0.5	0.7	0.7–0.8
Non-European immigrants	2.4	2.2–2.6	1.1	1.0–1.2	0.5	0.5–0.5	1.0	0.9–1.1

Note. Model 1 is adjusted for age and sex. Model 2 is adjusted for age, sex, place of residence, socioeconomic status in 1985, maternal education, parental disposable income in 1998, and single adult households in 1985. OR = odds ratio; CI = confidence interval.

Table 4
Percentage of University Education in Sample by Maternal Education

Maternal education	Men					Women				
	Swedes (n = 371,920)	Adoptees (n = 2,062)	Siblings (n = 1,073)	Europeans (n = 4,449)	Non-Europeans (n = 1,855)	Swedes (n = 351,234)	Adoptees (n = 3,880)	Siblings (n = 811)	Europeans (n = 4,385)	Non-Europeans (n = 1,689)
Less than 9 years	14.9	25.7	28.1	8.5	13.0	19.9	29.1	21.3	14.9	10.7
9 years	19.4	29.9	40.7	11.7	16.2	22.6	35.5	37.5	12.8	15.2
10–11 years	23.6	26.4	35.5	15.0	21.7	28.4	30.9	39.8	19.2	24.2
12–13 years	37.6	25.7	48.3	34.9	24.5	39.5	35.4	58.6	26.7	30.4
University, 1–3 years	43.8	21.5	48.9	37.8	29.8	52.1	37.2	53.9	48.6	42.5
University, 4+ years	60.0	29.8	67.6	56.0	35.8	66.9	35.7	75.6	55.0	49.4
All	29.6	26.5	51.1	17.8	18.6	34.7	33.8	56.7	22.0	20.7

and thus make adequate interventions possible. The most obvious differences concerned psychiatric problems including substance abuse with up to threefold increased risks. Furthermore, considerably more adoptees had difficulties in supporting themselves. This was most strongly expressed in a twofold risk of needing social welfare during the past 6 months (analyzed with adjustment for socioeconomic factors). Adoptees' educational level was markedly lower compared with that of their peers who had a similar socioeconomic background. As to marrying and having a family, there were also several differences, but these were quantitatively of lesser importance. The adoptees' native continent had a greater predictive value for many outcomes than age on arrival in Sweden.

When the results from epidemiological studies of intercountry adoptees are interpreted, it is important to take into consideration the large variation among such adoptees in significant background factors. These background factors may each have a larger predictive value than the mutual background factor of adoption. Interpretations made on a group level (where the group is defined as individuals with an intercountry adoption background) therefore may be misleading with respect to different subgroups. In some contexts it may be more meaningful to try to understand such adoptees using other inclusion criteria, such as being individuals who were exposed to traumatic events as children (Hoksbergen & van Dijkum, 2001), being individuals who experienced malnutrition as children, and being individuals who did not grow up with their biological parents. When our results are interpreted, arguments of this kind should be considered. It should also be borne in mind that adoption studies from a normative perspective may not reflect the subjective perspective—the "success" of the adoption according to parents and child (Goodman & Kim, 2000).

As to the educational conditions, the picture is complex. On the one hand, the adoptees reached different educational levels to an equally high degree as their peers. On the other hand, they reached a markedly lower educational level than could be expected with regard to the adoptive families' socioeconomic conditions, which is also illustrated in the siblings group's above-average study outcome. It is of interest to compare the results for the adoptees with the results for the immigrant groups. Without adjustments for socioeconomic variables, both these groups (European and non-European immigrants) showed markedly lower educational outcomes, which nevertheless are on the same level as—or above—that of the adoptees when such an adjustment is made.

Table 5
Summary of Logistic Regression Analyses of Indicators of Establishment in the Labor Market

Group	Unemployed						On social welfare at least 6 months in 1998						In work force in November 1998					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Swedes	1		1		1		1		1		1		1		1		1	
Adoptees	1.1	1.1-1.2	1.2	1.1-1.3	1.3	1.2-1.4	1.4	1.3-1.6	1.5	1.3-1.6	2.1	1.9-2.1	0.7	0.7-0.8	0.7	0.7-0.8	0.7	0.7-0.8
Siblings	0.6	0.5-0.6	0.9	0.8-1.1	1.0	0.9-1.1	0.6	0.5-0.8	0.9	0.7-1.2	0.9	0.7-1.1	0.8	0.7-0.9	0.8	0.7-0.9	0.9	0.8-1.0
European immigrants	1.3	1.3-1.3	1.2	1.1-1.3	1.2	1.1-1.2	3.1	3.0-3.3	2.4	2.2-2.5	2.1	2.0-2.2	0.6	0.6-0.6	0.6	0.6-0.6	0.7	0.7-0.7
Non-European immigrants	1.2	1.1-1.3	1.3	1.2-1.4	1.1	1.0-1.2	4.8	4.5-5.2	4.0	3.7-4.4	2.2	2.1-2.4	0.5	0.4-0.5	0.5	0.5-0.5	0.6	0.5-0.6

Note. Model 1 is adjusted for age and sex. Model 2 is adjusted for age, sex, own education, and place of residence. Model 3 is adjusted for age, sex, own education, place of residence, socioeconomic status in 1985, maternal education, parental disposable income in 1998, and single adult households in 1985. OR = odds ratio; CI = confidence interval.

The fact that the adoptees reached an average educational outcome can be seen as an effect of two different main forces: (a) poorer conditions because of various factors before the adoption and (b) social conditions in which academic study is encouraged in the adoptive families. Such a hypothesis is in line with an earlier study of deprived adoptees, abused and/or neglected during infancy and adopted between 4 and 6 years of age (Duyme, Dumaret, & Tomkiewicz, 1999). In this study, a significant gain in IQ was registered at adolescence, with levels depending on the SES of the adoptive families.

It is worth noting that the number of adoptees who reached university level is essentially the same regardless of maternal educational level, whereas the number of university students in the rest of the groups increased with maternal educational level. This can be interpreted in the light of the theory of genotype → environment effects. The “good enough” environment in the adoptive homes does encourage academic study, but the capacity for academic achievement in some of the adoptees—with probably a limited potential in this respect due to genetic and earlier environmental factors—is not further stimulated by increased maternal education (Scarr, 1992, 1993; Scarr & McCartney, 1983).

Earlier studies have not shown consistent results with respect to educational attainment in childhood. In a subpopulation of 104 adoptees from a Canadian community survey, no differences in “educational morbidity” were found between adoptees and non-adopted children (Lipman, Offord, Boyle, & Racine, 1993). In a British study focusing on nationally adopted children ($n = 180$), the adoptees showed better educational performance than children with similar birth circumstances and were closely comparable with the general population (Maughan, Collishaw, & Pickles, 1998). Of interest, these results remained when new evaluations (self-reports about educational and vocational qualifications) were performed when the adoptees were ages 23 and 33. Female adult adoptees even achieved higher qualifications than the general population sample.

In other studies concerning intercountry adoption, however, educational attainment has been lower in adoptees than in the general population. For instance, in a Dutch study of 2,148 adopted children 10–15 years of age, a lower competence with respect to academic functioning was found in the adopted group (Verhulst, Althaus, & Versluis-den Bieman, 1990a). These findings were particularly pronounced in children adopted at older ages (Verhulst, Althaus, & Versluis-den Bieman, 1990b). In a Danish study, a higher proportion

Table 6
 Summary of Logistic Regression Analyses of Indicators of Health Problems

Group	Sick pension				Disability benefit				Long-term sick leave			
	Model 1		Model 2		Model 1		Model 2		Model 1		Model 2	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Swedes	1		1		1		1		1		1	
Adoptees	1.5	1.3-1.9	1.8	1.5-2.1	1.6	1.3-1.9	1.8	1.3-2.3	1.4	1.1-1.9	1.7	1.4-2.3
Siblings	1.0	0.7-1.5	1.2	0.8-1.8	1.4	0.8-2.3	1.4	0.8-2.3	0.4	0.2-1.0	0.5	0.2-1.2
European immigrants	1.7	1.5-1.9	1.3	1.1-1.5	1.0	0.8-1.4	1.0	0.7-1.3	1.5	1.3-1.9	1.4	1.1-1.7
Non-European immigrants	1.2	0.9-1.5	0.8	0.5-1.1	1.3	0.9-2.2	1.1	0.7-1.7	1.3	0.9-1.9	0.7	0.4-1.2
Benefits												
Hospital admissions during 1997-1999												
Psychiatric care												
Swedes	1		1		1		1		1		1	
Adoptees	2.7	2.2-3.2	2.9	2.4-3.5	2.0	1.4-1.9	2.4	1.7-3.6	2.3	1.5-3.3	2.9	2.0-4.2
Siblings	0.9	0.5-1.6	0.9	0.5-1.7	0.8	0.2-2.1	1.0	0.4-2.7	0.2	0.0-1.7	0.4	0.1-2.2
European immigrants	1.9	1.6-2.3	1.5	1.3-1.9	2.7	2.1-3.5	1.9	1.4-2.6	3.5	2.7-4.7	2.0	1.5-2.6
Non-European immigrants	1.9	1.4-2.5	1.2	0.8-1.6	0.4	0.1-1.2	0.3	0.1-0.8	3.1	2.1-4.6	1.4	0.9-2.1
Alcohol addiction												
Substance abuse												

Note. Model 1 is adjusted for age and sex. Model 2 is adjusted for age, sex, place of residence, socioeconomic status in 1985, maternal education, parental disposable income in 1998, and single adult households in 1985. OR = odds ratio; CI = confidence interval.

Table 7
Summary of Logistic Regression Analyses of Adoptee-Specific Risk Factors for Family Situation, Educational Achievement, and Establishment in the Labor Market

Variable	Married		Living with parents		University degree		Only primary education		In workforce		Unemployed		Social welfare recipient >6 months	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
SES: white-collar														
Yes	1.1	1.0-1.3	1.0	0.9-1.2	1.3	1.1-1.5	0.8	0.7-1.0	1.1	0.9-1.1	0.9	0.6-1.3	0.8	0.7-1.0
No		1		1		1		1		1		1		1
Region of birth														
Latin America	1.0	0.8-1.2	1.2	0.9-1.6	0.4	0.3-0.5	1.6	1.3-2.1	0.7	0.5-0.8	1.3	1.1-1.6	1.9	1.5-2.4
Africa	1.2	0.9-1.6	0.7	0.4-1.0	0.7	0.5-0.9	1.5	1.1-2.0	0.7	0.6-0.8	0.9	0.4-2.1	1.5	1.1-2.1
South Asia	1.1	0.9-1.3	1.2	1.0-1.5	0.6	0.5-0.6	1.0	0.8-1.3	0.9	0.8-1.1	1.3	0.8-2.1	1.3	1.0-1.5
Far East		1		1		1		1		1		1		1
Age on arrival in Sweden (years)														
0-1		1		1		1		1		1		1		1
2-3	0.9	0.8-1.1	1.1	0.9-1.3	0.9	0.8-1.0	1.2	0.9-1.4	0.8	0.7-0.9	1.6	1.0-2.5	1.1	0.9-1.4
4-6	0.9	0.7-1.2	0.7	0.6-1.0	0.6	0.5-0.7	1.7	1.4-2.2	0.8	0.7-0.9	2.1	1.2-3.4	2.0	1.6-2.5

Note. Models are adjusted for year of birth, sex, and place of residence. OR = odds ratio; CI = confidence interval; SES = socioeconomic status.

Table 8
Summary of Logistic Regression Analyses of Adoptee-Specific Risk Factors for Health Problems

Variable	Hospital admission: substance abuse		Hospital admission: alcohol abuse		Hospital admission: psychiatric diagnosis		Disability pension	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
SES: white-collar								
Yes	0.6	0.3–1.3	1.2	0.5–2.7	0.8	0.5–1.2	0.9	0.6–1.3
No		1		1		1		1
Region of birth								
Latin America	2.7	1.0–7.0	4.5	1.5–13.7	1.5	0.8–2.6	1.3	0.7–2.2
Africa	0.7	0.1–5.1	4.9	1.4–17.6	1.4	0.7–2.9	1.8	1.4–2.5
South Asia	1.0	0.3–2.9	3.6	1.3–10.2	1.2	0.7–1.8	1.3	1.0–1.5
Far East		1		1		1		1
Age on arrival in Sweden (years)								
0–1		1		1		1		1
2–3	0.6	0.1–1.7	1.0	0.4–2.7	0.9	0.5–1.5	1.3	1.0–1.5
4–6	1.2	0.4–3.2	1.3	0.5–3.6	2.2	1.4–3.4	1.7	1.3–2.1

Note. Models were adjusted for year of birth, sex, and place of residence. OR = odds ratio; CI = confidence interval.

of adoptees had left school without going on to vocational or higher education (Rorbeck, 1990).

It appears that the adoptees have considerably more difficulties than individuals in the general population in entering the labor market—mainly manifested in dependence on social welfare—and the problems are of the same magnitude as in the immigrant groups after socioeconomic conditions are controlled for. In a British study of national adoption, male adoptees were more likely than a general population comparison group to have been fired and to have been unemployed (Collishaw, Maughan, & Pickles, 1998). This group of adoptees differed from most intercountry adoptee samples in that they were younger at the time of adoption; 77% were adopted within 3 months of birth.

A conceivable explanation for our results is that adoptees—because of their non-Swedish appearance—may have been rejected because of discrimination by employers in their decisions about whom to hire. This interpretation is supported by another Swedish study (Rooth, 2001) demonstrating that non-European adoptees had more difficulties in being employed compared with adoptees from Europe with a similar educational background.

When it comes to adoptees becoming parents themselves, the lower frequency of parenthood in adoptees may partly reflect a socially conditioned lifestyle. This attitudinal factor is most clearly illustrated in the siblings group by the increase in OR from 0.5 to 1.0 on the item “having a child” when SES was adjusted for. The existing discrepancies may also

be an expression of delays in marrying and having children, implying that differences will decrease or disappear over time. This “delay hypothesis” is given support by a British study, referred to above (Collishaw et al., 1998). The authors reported that a sample of nationally adopted mothers had their first child about 2 years later than did the general population sample. However, there were no differences for either adopted men or women in family size at 33 years of age. The adoptee group’s somewhat lower capacity to support themselves may have contributed to such a delay in our study, as well as to the tendency to live with their parents in young adulthood.

Of interest, adopted women live as single parents to a larger extent than is the case in the general population and adopted men who are fathers live with their children to a lesser extent than do other parents. Similar findings have been reported in studies on the adult outcome of children in long-term foster care (Vinnerljung, 1996). The results may indicate that adoptees more often have difficulties in maintaining a close adult relationship. Some support for such a hypothesis is provided by the earlier reported findings of difficulties with respect to social support in adult men adopted as infants (Collishaw, Maughan, & Pickles, 1998); adopted men were less likely than comparison groups (birth comparisons and a general population sample) to report turning to a friend for help with personal problems.

The risk of developing psychiatric symptoms including substance abuse is even higher than the risks of other outcome variables and is on a par with what

has been described in a previous study of a younger cohort of Swedish intercountry adoptees (Hjern, Lindblad, & Vinnerljung, 2002). Some earlier studies concerning the psychiatric morbidity or well-being of adopted children and adolescents have reached similar conclusions (Slap, Goodman, & Huang, 2001; Versluis-den Bieman & Verhulst, 1995), but contrasting findings have also been presented (Cederblad, Höök, Irhammar, & Mercke, 1999; Kim, Shin, & Carey, 1999).

There were considerable differences between adoptees from different geographical regions with better outcomes in many respects for children from the Far East, in this context mainly South Korea. Similar positive adjustment results concerning Asian adoptees have been presented previously. For instance, an excellent prognosis concerning adjustment and identity development in Chinese adoptees in Britain was described (Bagley, 1993). A Dutch group recently presented data about academic achievement and intelligence in 7-year-old children adopted in infancy (Stams, Juffer, Rispen, & Hoksbergen, 2000). The South Korean group had high IQs with 31% above a score of 120. Pre- and postnatal care before adoption seems to be particularly well organized in South Korea (Kim, 1995), which may be one important reason for the positive outcome. The differences among the geographic regions may also, however, be due to a large number of other factors such as differences in nutrition, motives behind the adoption, quality of care in the orphanage–foster home before the adoption, genetic dispositions, and Swedish prejudices against “foreign-looking” people. Another explanation may be a larger number of younger infants in the South Korean group. However, that is not possible to verify from our register data.

The siblings group, that is, the adoptive parents' biological children, appears to be a close-to-ideal comparison group when the outcome of intercountry adoption is assessed. The generally much “better” results for the siblings group compared with the adoptees may be an effect of varying genetically related factors. However, systematic differences in important nonshared environmental factors may also have contributed to this difference in outcome. These factors can be intrafamilial (e.g., variances in relations between parents and their biological vs. their adopted children) but also extrafamilial influences during the formative years (cf. Dunn & Plomin, 1990, 1991; Plomin & Daniels, 1987).

The present study shows that high SES in the adoptive family positively affects several outcomes such as educational level and adoptees' capacity for self-support. From this perspective, Swedish strategies

for selecting adoptive parents (who above all select themselves, though—to a large extent probably due to social-group related patterns) might be considered successful. The relation between SES and adjustment has been illustrated clearly in the research mentioned above concerning IQ development in adoptees who experienced deprivation, in whom the gain in IQ up to adolescence was highly related to SES (Duyne, Dumaret, & Tomkiewicz, 1999).

The results show notable gender variations—the outcome for adopted women seems better than for men. This has been noted in the adoption literature before (e.g., Verhulst et al., 1990a; Stams et al., 2000) as well as in studies on the outcome of long-term foster family care (e.g., Vinnerljung, 1996). Even if the findings are far from conclusive (see, e.g., Fergusson, Lynskey, & Horwood, 1995), they raise important questions about possible gender-related effects of long-term substitute care.

In this study we used the unique combination of a high proportion of intercountry adoptees in the Swedish population and high-quality national databases to create a large study population of intercountry adoptees. One limitation of the study was the indirect criteria for identifying adoptees described in the Method section. These criteria made it necessary to exclude certain small groups of intercountry adoptees, such as those with parents who adopted while living abroad and those from adoptive homes in which one or both of the parents were foreign-born. The available register records could not distinguish these excluded adoptees from biological children born abroad and children in immigrant families. The limitations of the registers also made it impossible to identify the approximately 500 Swedish-born adoptees nested within the general population in the study.

From a national socioethical perspective, our results do not disqualify intercountry adoption. The intercountry adoptees' development from childhood into adulthood in Swedish society seems to be satisfactory enough in many respects. However, we find the data about psychiatric problems conspicuous, even though they refer only to a small part of the adoptee population. They imply that specific measures have to be taken. First, adoptees and their families must be guaranteed secure access to psychiatric counseling at units in which the multifarious roots of symptoms and behavioral disturbances in adoptees are respected. Second, information about elevated risks must be given to all persons involved in intercountry adoption—including the adoptive parents. Third, further research aimed at identifying common mechanisms of psychiatric symptom formation and at

finding intervention strategies in adoptees who are at high risk is urgently needed.

Furthermore, from the socioethical perspective, it should be mentioned that discrimination may be one factor contributing to the difficulties of adoptees concerning employment. Further research is necessary to verify or refute this hypothesis.

As has been pointed out by others, a life span perspective is essential in assessing the impact of adoption (Smyer, Gatz, Simi, & Federsen, 1998). Thus, for the future we find it urgent to follow up the intercountry adoptees' further development into adulthood. In case the above-mentioned negative tendencies should be further accentuated over time, there may be reason to consider other systematic social measures in order to facilitate optimal development.

References

- Bagley, C. (1993). Chinese adoptees in Britain: A twenty-year follow-up of adjustment and social identity. *International Social Work, 36*, 143–157.
- Bohman, M., & Sigvardsson, S. (1980). Negative social heritage. *Adoption & Fostering, 3*, 25–31.
- Bohman, M., & Sigvardsson, S. (1990). Outcome in adoptions: Lessons from longitudinal studies. In D. M. Brodzinsky & M. D. Schechter (Eds.), *The psychology of adoption* (pp. 93–106). New York: Oxford University Press.
- Cederblad, M., Höök, B., Irhammar, M., & Mercke, A. M. (1999). Mental health in international adoptees as teenagers and young adults. An epidemiological study. *Journal of Child Psychology and Psychiatry, 40*, 1239–1248.
- Collishaw, S., Maughan, B., & Pickles, A. (1998). Infant adoption: Psychosocial outcomes in adulthood. *Social Psychiatry and Psychiatric Epidemiology, 33*, 57–65.
- Dunn, J., & Plomin, R. (1990). *Separate lives: Why siblings are so different*. New York: Basic Books.
- Dunn, J., & Plomin, R. (1991). Why are siblings so different? The significance of differences in sibling experiences within the family. *Family Process, 30*, 271–283.
- Duyme, M., Dumaret, A.-C., & Tomkiewicz, S. (1999). How can we boost IQs of “dull children”? A late adoption study. *Proceedings of the National Academy of Sciences, USA, 96*, 8790–8794.
- Fergusson, D., Lynskey, M., & Horwood, J. (1995). The adolescent outcomes of adoption: A 16-year longitudinal study. *Journal of Child Psychology and Psychiatry, 36*, 597–615.
- Goodman, J. F., & Kim, S. S. (2000). “Outcomes” of adoptions of children from India: A subjective versus normative view of “success.” *Adoptions Quarterly, 4*(2), 3–27.
- Hjern, A., Lindblad, F., & Vinnerljung, B. (2002). Suicide, psychiatric illness and social maladjustment in intercountry adoptees in Sweden. *The Lancet, 360*, 443–448.
- Hoksbergen, R., & van Dijkum, C. (2001). Trauma experienced by children adopted from abroad. *Adoption & Fostering, 25*, 18–25.
- International statistical classification of diseases and related health problems: ICD-10* (Vol. 1). (1992). Geneva: World Health Organization.
- Kane, S. (1993). The movement of children for international adoption: An epidemiological perspective. *The Social Science Journal, 30*, 323–339.
- Kim, W. J. (1995). International adoption: A case review of Korean children. *Child Psychiatry and Human Development, 25*, 141–154.
- Kim, W. J., Shin, Y. J., & Carey, M. P. (1999). Comparison of Korean–American adoptees and biological children of their adoptive parents: A pilot study. *Child Psychiatry and Human Development, 29*, 221–228.
- Lipman, E. L., Offord, D. R., Boyle, M. H., & Racine, Y. A. (1993). Follow-up of psychiatric and educational morbidity among adopted children. *Journal of the American Academy of Child and Adolescent Psychiatry, 32*, 1007–1012.
- Maluccio, A. N., Ainsworth, F., & Thoburn, J. (2000). *Child welfare outcome research in the United States, the United Kingdom and Australia*. Washington, DC: CWLA Press.
- Maughan, B., Collishaw, S., & Pickles, A. (1998). School achievement and adult qualifications among adoptees: A longitudinal study. *Journal of Child Psychology and Psychiatry, 39*, 669–685.
- McRoy, R. G., Zurcher, L. A., Lauderdale, M. L., & Anderson, R. N. (1982). Self-esteem and racial identity in transracial and inracial adoptees. *Social Work, 27*, 522–526.
- Plomin, R., & Daniels, D. (1987). Why are children from the same family so different from each other? *Behavioral and Brain Sciences, 10*, 1–16.
- Rooth, D.-O. (2001). Etnisk diskriminering och “Sverige-specifik” kunskap—Vad kan vi lära från studier av adopterade och andra generationens invandrare? [Ethnic discrimination and “Sweden-specific” knowledge—What can we learn from studies of adoptees and second generation immigrants?]. *Ekonomisk debatt, 29*, 535–546.
- Rorbeck, M. (1990). The conditions of 18- to 25-year-old foreign-born adoptees in Denmark. In H. Alstein & R. J. Simon (Eds.), *Inter-country adoption: A multinational perspective* (pp. 127–139). New York: Praeger.
- Salonen, T. (1993). *Margins of welfare*. Hallelstad, Sweden: Hallelstad Press.
- Sarri, R., Baik, Y., & Bombyk, M. (1998). Goal displacement and dependency in South Korean–United States inter-country adoption. *Children and Youth Services Review, 20*, 87–114.
- Scarr, S. (1992). Developmental theories for the 1990s: Development and individual differences. *Child Development, 63*, 1–19.
- Scarr, S. (1993). Biological and cultural diversity: The legacy of Darwin for development. *Child Development, 64*, 1333–1363.
- Scarr, S., & McCartney, K. (1983). How people make their own environments: A theory of genotype → environment effects. *Child Development, 54*, 424–435.
- Selman, P. (1998). Intercountry adoption in Europe after the Hague Convention. In R. Sykes & P. Alcock (Eds.),

- Developments in European social policy: Convergence and diversity* (pp. 147–169). Bristol, United Kingdom: Policy Press.
- Selman, P. (2001, September). *The movement of children for transnational adoption: A demographic perspective*. Paper presented at the Nordic Research Conference “35 Years With Inter-Country Adoptions,” Göteborg, Sweden.
- Slap, G., Goodman, E., & Huang, B. (2001). Adoption as a risk factor for attempted suicide during adolescence. *Pediatrics, 108*, E30, 1–8.
- Smyer, M. A., Gatz, M., Simi, N. L., & Pedersen, N. L. (1998). Childhood adoption: Long-term effects in adulthood. *Psychiatry, 61*, 191–205.
- Stams, G.-J. J. M., Juffer, F., Rispen, J., & Hoksbergen, A. C. (2000). The development and adjustment of 7-year-old children adopted in infancy. *Journal of Child Psychology and Psychiatry, 41*, 1025–1037.
- Statistics Sweden. (1982). *Socio-economic classification (SEI)*. Stockholm: Statistics Sweden.
- Tizard, B. (1991). Inter-country adoption: A review of the evidence. *Journal of Child Psychology and Psychiatry, 32*, 743–756.
- Triseliotis, J. (2000). Inter-country adoption. Global trade or global gift? *Adoption & Fostering, 24*, 45–54.
- Verhulst, F. C., Althaus, M., & Versluis-den Bieman, H. J. (1990a). Problem behavior in international adoptees: I. An epidemiological study. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 94–103.
- Verhulst, F. C., Althaus, M., & Versluis-den Bieman, H. J. (1990b). Problem behavior in international adoptees: II. Age at placement. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 104–111.
- Versluis-den Bieman, H. J., & Verhulst, F. C. (1995). Self-reported and parent reported problems in adolescent international adoptees. *Journal of Child Psychology and Psychiatry, 36*, 1411–1428.
- Vinnerljung, B. (1996). *Fosterbarn som vuxna* [Foster children as adults]. Lund, Sweden: Arkiv.

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