Mental health in young adult intercountry adoptees

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Mental health in young adult intercountry adoptees

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1 Introduction

Chapter 1
Introduction

Adoption in the Netherlands

Since the 1970s the number of intercountry adoptions in the Netherlands rapidly increased. Before 1970, adoptions in the Netherlands almost always concerned domestic adoptions. Several factors caused the rapid increase in intercountry adoptions. First, the adoption law in the Netherlands was changed in 1968, creating more possibilities for intercountry adoption. Second, in the 1970s more openness about adoption arose and as a result adoption was no longer a taboo. Third, there was a decline in domestic adoptions in the same period, due to more possibilities for and openness about birth control and due to more social acceptance and financial possibilities for women to raise children on their own. As a result, less Dutch children were available for adoption. Fourth, parents did not only want to adopt a child because of unwanted childlessness, but also because of idealistic motives. Through television in the 1960s, the misery of children in Third World countries and countries in war were shown and persuaded many parents to adopted a child out of idealistic motives (Hoksbergen, 1998, 2002; Verhulst & Versluis-den Bieman, 1989).

Between 1975 and 1986 more than 1,000 children a year were adopted from outside the Netherlands into the Netherlands. The main sending countries in this period were Korea, Columbia and India. In the late 1980s and the 1990s there was a decrease in the number of intercountry adoptions; between 500 and 1,000 children a year were internationally adopted in that period in the Netherlands. In this period, concerns arose about the mental health of intercountry adoptees. Clinicians reported overrepresentation of adoptees in mental health settings and some adoptive parents expressed worries about their children through the media. Since 2000, the number of intercountry adoptions has risen again to more than 1,000 a year. In 2004, 1,307 foreign born children were adopted by Dutch parents. Presently, the main sending country is China, with 800 adopted children in 2004 (Ministerie van Justitie, 2005).

Worldwide, the Netherlands is among the countries with a high number of intercountry adoptees in relation to its total population. In the Netherlands, the adoption ratio, i.e. the number of adoptions per 1,000 live births is 4.6, which is similar the USA's ratio, which is 4.2. Only Norway, Sweden, Denmark, Switzerland, France and Canada have higher adoption ratios (Selman, 2002). In total, more than 30,000 intercountry adoptees live in the Netherlands, mainly from Asia and Latin America (Hoksbergen, 2002).

Research on intercountry adoptees

Intercountry adoptees have often experienced negative environmental influences, such as being abandoned by parents, discontinuous caretaking, insufficient medical care, malnutrition, neglect and abuse. Moreover, children may be deprived of influences that are crucial for a healthy development, such as adequate stimulation, affection and opportunities for developing enduring attachments to others (Gunnar, Bruce, & Grotevant, 2000; Verhulst, 2000a; Verhulst, Althaus, & Versluis-den Bieman, 1990a). Furthermore, adoption involves the loss of the biological parents, family ties and their culture (Brodzinsky, 1990; Verhulst, 2000b). Finally, the development of their ethnic and cultural identity might be problematic for intercountry adoptees (Baden & Steward, 2000).

The question arises what the impact is of adoption on the development of the child later in life. Although adoption seems to be in the best interest of the child and often offers improved conditions, it is important to study the long-term outcomes of intercountry adoption. Recently, several meta-analyses have shown that the majority of adopted children and adolescents are well adjusted, although a large minority had serious adjustment, behavior or learning problems (Bimmel, Juffer, Van IJzendoorn, & Bakermans Kranenburg, 2003; Juffer & Van IJzendoorn, 2005; Van IJzendoorn, Juffer, & Klein Poelhuis, 2005). So far, the majority of studies had focused on adopted children and adolescents. Little is known about the development of adoptees in adulthood, especially for intercountry adoptees.

The Sophia Longitudinal Adoption Study

The Sophia Longitudinal Adoption Study was urged in 1986 by the increasing concern about the overrepresentation of intercountry adopted children in residential treatment. In 1986-1987 the behavioral development of 2,148 foreign born adoptees aged 10 to 15 years was assessed. To study the developmental course of problem behaviors in adolescence, the sample was approached again in 1990. Finally, to study the mental health of adoptees as young adults, the adult adoptees, aged 24 to 30 years, were approached between 1999 and 2002. The results of this third measurement are described in this thesis.

Late childhood (Time 1)

Sample and procedure. The original target sample consisted of all children (n = 3,519) legally adopted by non-relatives in The Netherlands and born outside The Netherlands between January, 1 1972 and December, 31 1975. Children were selected from the central adoption register of the Dutch Ministry of Justice. From the original sample, 162 children had moved

abroad, 39 were untraceable and 9 had died. Of the 3,309 parents reached, 2,148 participated in the study (64.9%); parents of 238 children refused to participate and on 923 children no response was received (Verhulst et al., 1990a).

At the first measurement, 1986-1987, children were aged 10-15 years. Age of the adopted child at placement ranged from a few days to 10 years, with the majority being adopted before the fourth birthday. The distribution across native countries was: Korea 32.0%; Colombia 14.6%; India 9.5%; Indonesia 7.9%; Bangladesh 6.7%; Lebanon, 4.9%; Austria 5.0%; other European countries 4.2%; other non-European countries 15.2%. The mean occupational level of parents in the adoption sample was much higher than in the general population (Verhulst et al., 1990a).

Instruments. Parents were requested to complete the Child Behavior Checklist (CBCL) (Achenbach, 1991a) and to provide information on a number of variables reflecting adverse environmental influences in the country of origin (Verhulst et al., 1990a; Verhulst, Althaus, & Versluis-den Bieman, 1992). Age at placement was obtained from the central adoption register of the Dutch Ministry of Justice. It should be stressed that the exact birth date of the child was not always available. Some parents have changed their child's age according to an estimate based on bone-age assessment (Verhulst, Althaus, & Versluis-den Bieman, 1990b).

Results. More problem behaviors, especially externalizing behaviors, were reported for adopted than for nonadopted children. More problems were reported for boys than for girls and for 12- to 15-year-olds than for 10-to 11-year-olds. The largest proportion of "deviant" children were found among 12- to 15-year-old boys, with more than twice as many boys scoring above the cutoff criterion for problem behavior in the adopted as in the nonadopted sample. Adopted children were less competent in their social and academic functioning than nonadopted children. In contrast, adopted children were found to be more active in nonsport activities and to function somewhat better than nonadopted children in sports and nonsport activities. Surprisingly, adopted children with low parental SES showed better academic performance, were less often referred to special classes, and had less other school problems than adopted children with high parental SES (Verhulst et al., 1990a).

A significant association between age of the child at placement and increased risk for later maladjustment was found. However, this relationship was not fully linear; children who were adopted between 0 to 6 months were at somewhat (not significantly) greater risk than children who were placed between 7 and 24 months. After the age of 24 months, a gradual

increase of the risk of later maladjustment with increasing age occurred (Verhulst et al., 1990b).

A large proportion of the study sample had experienced adverse influences. Parents reported that in the native country, children had been subjected to neglect in 45% of the sample, to abuse in 13%, and to changes of caretakers in 54%. It was found that early neglect, abuse, and the number of changes of caretakers increased the risk for later maladjustment. For example, problem behaviors were shown by 50% of the children who experienced five or more changes in caretakers, by 24% of the children who had been severely neglected and by 31% of the severely abused children (Verhulst et al., 1992).

Age at placement and early adverse experiences are closely related; the older the age of the child at placement the greater the probability that the child had experienced early adversities. This association explained the greater likelihood of later maladjustment with increasing age at placement. Age at placement, as such, did not contribute to the prediction of later maladjustment, independent of the influence of early adversities (Verhulst et al., 1992).

Adolescence (Time 2)

Sample and procedure. At follow-up, with a mean interval of 3.2 years between the first assessment and the second assessment, parents of 2,071 adopted children were requested to complete questionnaires. Of the time 1 sample, 29 subjects were untraceable, 8 had moved abroad, 3 had died, and 37 were not approached because they participated in another study, interfering with the present study. Usable information was received on 1,538 adoptees (74.3%), who were aged 14 to 18 years (Verhulst & Versluis-den Bieman, 1995).

The adopted adolescents were also asked to fill out questionnaires by themselves. The adolescent was instructed to complete the questionnaires independently from the parents, and return the completed forms in a separate prepaid envelope. Of the 2,071 approached adoptees, we obtained usable information from 1,262 (60.9%) (Versluis-den Bieman & Verhulst, 1995).

Instruments. Parents were again requested to complete the CBCL and to provide information on a number of variables reflecting adverse environmental influences in the country of origin. Furthermore, questions about the general functioning of the child were included. The adopted adolescents were requested to complete the Youth Self-Report (YSR)(Achenbach, 1991b), as well as a questionnaire with questions on general functioning (Verhulst & Versluis-den Bieman, 1995; Versluis-den Bieman & Verhulst, 1995).

Results. In contrast to children in the general population (Verhulst, Koot, & Berden, 1990), problem behaviors increased and competencies (social functioning, school functioning

and functioning in activities) decreased for adoptees from late childhood to adolescence. The increase in problem scores was not associated with age of the child at placement, the medical condition at placement, early neglect or abuse or racial antagonism. The cause of the increase in problem behaviors in adolescence remained uncertain (Verhulst & Versluis-den Bieman, 1995).

To check that the higher prevalence of problem behaviors in adopted children and adolescents is not merely due to the adoptive parents lower threshold to report problems, adopted adolescents self-reports were examined. Of the adopted boys 22% and 18% of the adopted girls could be regarded deviant according to the self-reports, compared with about 10% boys and girls from the general population. Parent reports showed a slightly greater difference between adopted and nonadopted boys compared to the self-reports. Early adversities in the country of origin were weakly associated with later parent-reported, but not with self-reported problems (Versluis-den Bieman & Verhulst, 1995).

The present study: Adulthood (Time 3)

The first generation of intercountry adoptees in the Netherlands has now entered adulthood. Given the increase in problems from late childhood into adolescence that we found at the earlier measurements, we were especially interested in the adaptation of intercountry adoptees in young adulthood. Furthermore, as stated above, so far little research has focused on the mental health of intercountry adoptees into adulthood. Therefore, a third measurement of the Sophia Longitudinal Adoption Study was conducted.

Sample and procedure. During October 1999 and April 2002, with a mean interval of 13.9 years, we sought contact to all subjects in the original sample of 2,148, except 15 who had died, 13 who had intellectual disabilities, 72 who had emigrated, 100 who had requested at previous stages to be removed from the sample, 59 who were untraceable, and 4 of whom we were uncertain that they were informed about the fact that they were adopted. After a letter, explaining the purpose of the follow-up, was sent, we sought contact by phone with all subjects to ask to participate in the study and to make an appointment for the interview. Of the 1,885 approached subjects, 1,521 participated in the study, 288 refused to participate and 76 did not respond. Thus, the response rate was 74.3% of the time 1 sample, corrected for adoptees who had died, who had intellectual disabilities and who had emigrated. Participants filled out a questionnaire, sent to them before they were interviewed at home.

If the participating adoptee gave permission to contact their adoptive parents, a questionnaire was sent to the parents. Of all participating adoptees 1358 (89.2%) gave this permission. A reminder was sent to the non-responding parents up to three times. The parents returned questionnaires on 1157 adoptees (85.2 %). The parents of 64 adoptees refused to participate, the address of parents of 33 adoptees was incorrect, and parents of 109 adoptees did not respond. Thus, of 76.1 % of the adoptees participating at the third measurement, we also obtained parent information.

Instruments. The following questionnaires and interviews were used: A questionnaire to assess sociodemographic variables, such as: marital status, offspring, living conditions, educational and professional level. Social functioning was assessed with the Groningse Vragenlijst Sociaal Gedrag (GVSG; Groningen Questionnaire about Social Behavior (GQSB)). Problem behaviors were assessed with the Young Adult Self-Report (YASR) and the Young Adult Behavior Checklist (YABCL). The Composite Diagnostic Interview Schedule (CIDI) and Diagnostic Interview Schedule (DIS) were used to obtain DSM-IV diagnoses. Part of the Adoption Dynamics Questionnaire (ADQ) was used to assess to subjective experience of adoption. To assess physical, intellectual and psychological similarity to the adoptive father and mother, the Family Similarity Interview (FSI) was used. A detailed description of these instruments can be found in the concerning articles.

Aims. In the present study, we aimed to extend the knowledge on the development of intercountry adoptees, by examining outcomes in adulthood. Various indicators of mental health of young adult intercountry adoptees were determined, including sociodemographic characteristics, social functioning, problem behaviors and psychiatric disorders. Mental health outcomes of young adult intercountry adoptees were compared with those of young adults in the general population. The role of age, sex and SES was systematically examined.

The aims of the present study were:

1. To compare the current mental health, including psychiatric disorders and social functioning, of young adult intercountry adoptees aged 24 to 30 years, with that of young adults from the general population.
2. To determine the longitudinal course of mental health in intercountry adoptees over a 14-year period from ages 10 to 30 years.
3. To determine the role of age, sex and SES on mental health in young adult intercountry adoptees.
4. To determine the prevalence of searching for birth parents in young adult intercountry adoptees and to determine factors associated with this search.

Structure of this thesis

In **chapter 2**, the prevalence of psychiatric disorders in young adult intercountry adoptees is compared with that of nonadoptees. Age, sex and SES differences with respect to psychiatric disorders between adoptees and nonadoptees are also investigated. In **chapter 3**, information is provided on different aspects of social functioning in young adult intercountry adoptees compared to nonadoptees. A wide range of biographical characteristics, concerning marital status, living conditions, offspring, educational and professional status is investigated. Moreover, social functioning in different areas of daily life is examined. In **chapter 4,** the educational level of adoptees and nonadoptees are compared according to their parental SES, in order to get insight in the environmental and genetic influences. In **chapter 5**, the longitudinal development of problem behaviors in intercountry adoptees compared to nonadoptees over a 14 year period is explored. Sex and SES differences in the developmental course are also investigated. In **chapter 6,** young adult intercountry adoptees' search for birth parents is investigated. We examined how many adoptees search and which factors are associated with this search. Finally, in **chapter 7**, main findings and conclusions of this thesis are discussed. Moreover, clinical implications and recommendations for further research are given.

2 Psychiatric disorders in young adult intercountry adoptees: An epidemiological study

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Chapter 2
Psychiatric disorders in young adult intercountry adoptees: An epidemiological study

Abstract

Objective: *The prevalences of psychiatric disorders in young adult intercountry adoptees and nonadopted young adults from the general population were compared.* ***Method:*** *In the Netherlands, a total of 1,484 young adult intercountry adoptees (72.5% of the original sample at age 10–15 years) and 695 nonadopted subjects (78.1% of the original sample) of comparable age from the general population were interviewed by using a standardized psychiatric interview generating DSM-IV diagnoses.* ***Results:*** *The adopted young adults were 1.52 times as likely to meet the criteria for an anxiety disorder as the nonadopted young adults; the 95% confidence interval (CI) was 1.15–2.00. The adoptees were 2.05 (95% CI=1.32–3.17) times as likely to meet the criteria for substance abuse or dependence. The adopted men were 3.76 (95% CI=1.69–8.37) times as likely to have a mood disorder as nonadopted men, while for women there was no significant difference between adoptees and nonadoptees. No significant difference for the diagnosis of disruptive disorder was found. For all diagnoses together, adoptees with low and middle parental socioeconomic status in childhood did not differ from the comparison subjects, while adoptees with high parental socioeconomic status were 2.17 times (95% CI=1.50–3.13) as likely to meet the criteria for a disorder as nonadoptees with high parental socioeconomic status.* ***Conclusions:*** *Intercountry adoptees run a higher risk of having severe mental health problems in adulthood than nonadoptees of the same age. The risk of later malfunctioning differs for different disorders and different groups of adoptees.*

Introduction

Worldwide around 30,000 children a year are internationally adopted by nonrelatives (Selman, 2002). The Netherlands is one of the countries with a high number of intercountry adoptees in relation to its total population and to its number of births. The adoption ratio (number of adoptions per 1,000 live births) in the Netherlands, 4.6, is similar to that in the United States, 4.2 (Selman, 2002). In 2001, 1,122 foreign-born children were adopted by Dutch parents (Ministerie van Justitie, 2002). In total, the country has around 28,000 intercountry adoptees, mainly from Asia and Latin America.

Our earlier reports showed that internationally adopted children ages 10 to 15 years were at higher risk for showing behavioral or emotional problems than children of the same

age from the general population (Verhulst et al., 1990a, 1990b). These problems were found to increase across a 3-year follow-up period (Verhulst & Versluis-den Bieman, 1995). This study of 2,148 internationally adopted children and adolescents is the only study we know of that compared the longitudinal course of behavioral and emotional problems in a large, representative sample of adopted children and adolescents with that in nonadopted children and adolescents by using similar assessment procedures across time and across samples.

The first generation of intercountry adoptees in the Netherlands has now entered adulthood. Given the increase in problems from early to late adolescence that we found in our earlier studies, we were especially interested in the adaptation of intercountry adoptees in adult life. Most studies have focused on children and adolescents and not on young adults. Furthermore, most existing studies pertained to psychological well-being. To our knowledge, only three, Swedish, studies (Cederblad, Hoeoek, Irhammar, & Mercke, 1999; Hjern, Lindblad & Vinnerljung, 2002; Lindblad, Hjern, & Vinnerljung, 2003) have focused on the mental health of groups of intercountry adoptees that included young adults. The studies of Hjern, Lindblad, and Vinnerljung (2002, 2003) used data from national registers, including a register based on clinical records from all Swedish hospitals. The authors concluded that international adoptees in Sweden were at higher risk for severe mental health problems than nonadoptees. A limitation of these studies was that diagnostic data were obtained from clinicians who used unstandardized diagnostic procedures. Another limitation was that the authors had information only on adoptees who had been admitted to a hospital, thus ignoring mental health problems in those who did not receive psychiatric care. In another Swedish study, Cederblad et al. (1999) found that international adoptees had good mental health and did not differ much from nonadopted individuals. However, the conclusions of this study are limited because of the small and highly selected sample.

In the present study, we used the Composite International Diagnostic Interview (World Health Organization, 1992) to compare the 12-month prevalence of DSM-IV diagnoses in a sample of 1,521 young adult intercountry adoptees with the prevalence in a general population sample. The main aims of the present study were 1) to compare the prevalences of DSM-IV psychiatric disorders in young adult intercountry adoptees and nonadopted young adults and 2) to determine to what extent sex, age, and socioeconomic status are related to the probability of having psychiatric disorders.

Method

Sample and Procedure

Adoption sample. The sample consisted of all children (N=3,519) legally adopted by nonrelatives in the Netherlands and born outside the Netherlands between Jan. 1, 1972, and Dec. 31, 1975. Children were selected from the central adoption register of the Dutch Ministry of Justice, which keeps the records of all children adopted by Dutch parents. Of the 3,309 parents reached, 2,148 participated in the study (64.9%). The adopted children were between the ages of 10 and 15 years. After the first measurement in 1986, the sample was approached again in 1989–1990 for the second measurement. For details on the initial sampling procedure, see our earlier report (Verhulst et al., 1990a).

During October 1999 and April 2002, with a mean follow-up interval of 13.9 years, we sought contact with all subjects in the original sample of 2,148 except 15 who had died, 13 who were mentally retarded, 72 who had emigrated, 100 who had requested at previous stages to be removed from the sample, 59 who were untraceable, and four for whom we were uncertain that they had been informed of the fact that they had been adopted. Of the approached subjects, 1,521 participated in the study, 288 refused to participate, and 76 did not respond. Thus, the response rate was 74.3% of the time 1 sample (corrected for deceased subjects, mentally retarded individuals, and subjects who had emigrated). Informed consent was obtained from all subjects after the procedure had been fully explained.

In this study we focused on psychiatric diagnoses obtained through home interviews. Of the 1,521 subjects, 1,484 provided information complete enough for DSM-IV diagnoses, 24 refused to be interviewed, and 13 interviews were lost because of technical problems. Table 2.1 gives the main demographic features of this sample.

General population sample. For comparison with the adoption sample we used data for a 1983 general population sample from the province of Zuid-Holland, which encompasses more than 3,000,000 people in environments ranging from urban to rural. From municipal registers that list all residents, 100 children of Dutch nationality and of each sex at each age from 4 to 16 years (total N=2,600) were randomly selected. Of the 2,447 parents reached, 2,076 (84.8%) provided usable information. After the first measurement, the sample was approached again in 1985 (time 2), 1987 (time 3), 1989 (time 4), 1991 (time 5), and 1997 (time 6). For details of the initial sampling and data collection procedure, see our previous description (Verhulst, Akkerhuis, & Althaus, 1985).

In a previous comparison of adopted and nonadopted subjects, all 10–15-year-olds (N=933) among the 2,076 subjects from the general population sample in 1983 were selected for comparison with the adoption sample in 1986 (Verhulst et al., 1990a). For the present study we selected the same comparison group from the time 6 sample (1997) (Hofstra, Van der Ende, & Verhulst, 2000). Usable DSM-IV information was provided by 695 subjects. They comprised 78.1% of the original comparison group (corrected for deceased individuals, subjects with a mental handicap, and subjects who had emigrated). The mean follow-up interval for the comparison group was 14.7 years. Table 2.1 summarizes the demographic characteristics of this subsample.

Table 2.1 Demographic Features of Young Adults in the Netherlands Adopted From Other Countries and of Nonadopted Young Adults From the General Population

	Adopted (N=1,484)		Nonadopted (N=695)	
	N	%	N	%
Sex				
Female	820	55.3	378	54.4
Male	664	44.7	317	45.6
Age (years)				
22–24	151	10.2	42	6.0
25	304	20.5	115	16.5
26	424	28.6	124	17.8
27	322	21.7	109	15.7
28	190	12.8	126	18.1
29	81	5.5	112	16.1
30–32	12	0.8	67	9.6
Parental socioeconomic status on 6-point scale (13)[a]				
Low (score, 1 or 2)	136	9.2	233	33.6
Middle (score, 3 or 4)	365	24.6	225	32.5
High (score, 5 or 6)	983	66.2	235	33.9

[a]Information on parental socioeconomic status was missing for two subjects in the nonadopted group. For adoptees, the parental socioeconomic status refers to the adoptive family.

Attrition

To investigate selective attrition in the adopted and nonadopted groups, we compared the "dropouts" (i.e., all subjects for whom complete DSM-IV information was not obtained except for those who had died, were mentally retarded, or had emigrated) and the "completers" in both groups with respect to sex, age at time 1, emotional and behavioral problems at time 1, and their parents' socioeconomic status at time 1. Emotional and behavioral problems were assessed with the Child Behavior Checklist (Achenbach, 1991a). This is a questionnaire in which parents report on 118 specific problem items. A total problems score is computed by summing the scores for each of the 118 problem items.

Socioeconomic status was assessed by using a 6-point scale of parental occupation (Van Westerlaak, Kropman, & Collaris, 1975), with 1 indicating the lowest socioeconomic status.

Significantly more women than men participated in the follow-up of the adopted and nonadopted groups. In the adopted group 76.7% of the women participated and 67.8% of the men participated (χ^2=20.21, df=1, p<0.001); in the nonadopted group 79.6% and 69.1% participated, respectively (χ^2=13.46, df=1, p<0.001). The dropouts and completers did not differ significantly in age at time 1 in the adopted group (mean=12.38 years, SD=1.78, versus 12.35, SD=1.64) (t=0.49, df=2046, p=0.62) or the nonadopted group (mean=12.54, SD=1.67, versus 12.40, SD=1.69) (t=1.05, df=931, p=0.29). They also did not differ significantly in socioeconomic status in the adopted group (mean=4.55, SD=1.43, versus 4.63, SD=1.39) (t=–1.11, df=2046, p=0.27) or the nonadopted group (mean=3.46, SD=1.54, versus 3.56, SD=1.56) (t=–0.88, df=927, p=0.39). However, in the adopted group the mean Child Behavior Checklist total problems score at time 1 was significantly higher for the dropouts than that for the completers (mean=25.42, SD=23.49, versus 20.15, SD=18.66) (t=4.78, df=845.41, p<0.001), while in the nonadopted group there was no significant difference (mean=20.07, SD=16.82, versus 19.37, SD=16.36) (t=0.56, df=931, p=0.58). Therefore, it may be concluded that in the present longitudinal study, there was a slight underrepresentation of young adults with more problems at initial assessment in the adopted group.

Instruments

The computerized version of the Composite International Diagnostic Interview (World Health Organization, 1992) and three sections of the National Institute of Mental Health Diagnostic Interview Schedule (DIS) (Robins, Helzer, Croughan, & Ratcliff, 1997) were used to obtain diagnoses of mental disorders in the 12 months before the interview. The Composite International Diagnostic Interview has more than 300 questions chosen to cover the criteria for DSM-IV diagnoses. Good reliability and validity have been reported (Andrews & Peters, 1998). Because information concerning disruptive disorders in adulthood is lacking in the Composite International Diagnostic Interview, sections of the DIS covering these disorders were administered after completion of the Composite International Diagnostic Interview. Each assessment was conducted by an interviewer trained by the Dutch World Health Organization training center for the Composite International Diagnostic Interview.

Statistical Analyses

Logistic regression analyses were used to predict DSM-IV diagnoses from adoption status (nonadopted=0, adopted=1), controlled for sex (male=0, female=1), age (as a continuous variable; in accordance with the Box-Tidwell transformation test, age was scaled as a linear effect), and parental socioeconomic status at time 1 (as a categorical variable: low, middle, or high) to account for differences in sex, age and socioeconomic status distribution between the groups. For each group of diagnoses, we first tested the models for the presence of interactions of adoption status with sex, age, and socioeconomic status. After removal of nonsignificant interactions (p□0.05), main effects that were not part of a significant interaction were tested. For interpretation of the effects, odds ratios with 95% confidence intervals (CIs) were computed. Odds ratios will be interpreted with the phrase "x times as likely," and this refers to the fact that the odds of having the diagnosis are x times as high for one group as for the other, not that the probability of having the diagnosis is x times as great. The Hosmer and Lemeshow test showed a good fit for all models. For the adoptees, we also examined the effect of age at placement on the likelihood of a diagnosis; no significant effect was found.

Results

Table 2.2 shows the percentages of adopted and nonadopted subjects with specific DSM-IV diagnoses. Because the cell sizes were small for the majority of diagnoses, we combined specific disorders into four main groups, based on the classification of DSM-IV. Table 2.3 shows results of the logistic regression analyses. For each diagnosis, significant effects are shown. For significant interaction effects, separate odds ratios for the effect of adoption status in each subgroup are given.

In the adopted group, 16.0% had at least one anxiety disorder, compared with 11.2% in the nonadopted group. Adopted young adults were 1.52 times as likely to meet the criteria for an anxiety disorder as nonadopted young adults were. Furthermore, women in both groups were 3.37 times as likely to meet the criteria for an anxiety disorder as were men.

For mood disorders, the interaction between adoption status and sex was significant. Therefore, separate odds ratios for the adoption status effect for men and women are given. Adopted men were 3.76 times as likely to have a mood disorder as were nonadopted men, while for women there was no significant difference between adoptees and nonadoptees.

Table 2.2 DSM-IV Disorders in the Past 12 Months Among Young Adults in the Netherlands Adopted From Other Countries and of Nonadopted Young Adults From the General Population

	Adopted						Nonadopted					
	Male (N=664)		Female (N=820)		Total (N=1,484)		Male (N=317)		Female (N=378)		Total (N=695)	
	N	%	N	%	N	%	N	%	N	%	N	%
Anxiety disorders	58	8.7	180	22.0	238	16.0	12	3.8	66	17.5	78	11.2
Obsessive-compulsive disorder	11	1.7	14	1.7	25	1.7	1	0.3	9	2.4	10	1.4
Posttraumatic stress disorder	10	1.5	42	5.1	52	3.5	2	0.6	9	2.4	11	1.6
Panic disorder	1	0.2	7	0.9	8	0.5	0	0.0	1	0.3	1	0.1
Agoraphobia	4	0.6	4	0.5	8	0.5	1	0.3	0	0.0	1	0.1
Social phobia	11	1.7	21	2.6	32	2.2	1	0.3	9	2.4	10	1.4
Generalized anxiety disorder	1	0.2	4	0.5	5	0.3	1	0.3	1	0.3	2	0.3
Specific phobia	25	3.8	104	12.7	129	8.7	8	2.5	42	11.1	50	7.2
Mood disorders	52	7.8	100	12.2	152	10.2	7	2.2	32	8.5	39	5.6
Major depressive episode	42	6.3	91	11.1	133	9.0	7	2.2	30	7.9	37	5.3
Bipolar disorder	6	0.9	7	0.9	13	0.9	0	0.0	1	0.3	1	0.1
Dysthymia	4	0.6	2	0.2	6	0.4	0	0.0	1	0.3	1	0.1
Substance abuse or dependence	82	12.3	40	4.9	122	8.2	22	6.9	5	1.3	27	3.9
Alcohol dependence	27	4.1	10	1.2	37	2.5	5	1.6	2	0.5	7	1.0
Alcohol abuse	37	5.6	20	2.4	57	3.8	11	3.5	1	0.3	12	1.7
Drug dependence	10	1.5	6	0.7	16	1.1	1	0.3	1	0.3	2	0.3
Drug abuse	22	3.3	7	0.9	29	2.0	8	2.5	1	0.3	9	1.3
Disruptive disorders	44	6.6	10	1.2	54	3.6	21	6.6	5	1.3	26	3.7
Attention deficit hyperactivity disorder (both conditions)	0	0.0	1	0.1	1	0.1	0	0.0	0	0.0	0	0.0
Attention deficit disorder only	6	0.9	0	0.0	6	0.4	2	0.6	0	0.0	2	0.3
Hyperactivity disorder only	2	0.3	0	0.0	2	0.1	1	0.3	0	0.0	1	0.1
Antisocial personality disorder	36	5.4	8	1.0	44	3.0	16	5.0	5	1.3	21	3.0
Oppositional defiant disorder	3	0.5	2	0.2	5	0.3	3	0.9	0	0.0	3	0.4
Other disorders	—	—	—	—	—	—	—	—	—	—	—	—
Eating disorder	1	0.2	23	2.8	24	1.6	0	0.0	10	2.6	10	1.4
Schizophrenia or other psychosis	6	0.9	8	1.0	14	0.9	1	0.3	3	0.8	4	0.6
Somatoform disorder	3	0.5	13	1.6	16	1.1	4	1.3	7	1.9	11	1.6
Any DSM-IV disorder	160	24.1	280	34.1	440	29.6	52	16.4	98	25.9	150	21.6

Table 2.3 Logistic Regression Analyses for DSM-IV Diagnoses Among Young Adults in the Netherlands Adopted From Other Countries and of Nonadopted Young Adults From the General Population

	Odds Ratio	95% CI
Significant interactions		
Mood disorders: interaction of adoption status and sex		
Adoption status main effect for men	3.76	1.69–8.37
Adoption status main effect for women	1.50	0.99–2.28
Any disorder: interaction of adoption status and parental socioeconomic status		
Adoption status main effect for low socioeconomic status	0.96	0.58–1.58
Adoption status main effect for middle socioeconomic status	1.29	0.88–1.89
Adoption status main effect for high socioeconomic status	2.17	1.50–3.13
Significant main effects		
Anxiety disorders		
Adoption status main effect	1.52	1.15–2.00
Sex main effect	3.37	2.54–4.46
Substance abuse or dependence		
Adoption status main effect	2.05	1.32–3.17
Sex main effect	0.33	0.23–0.47
Age main effect	0.87	0.78–0.98
Disruptive disorders		
Sex main effect	0.18	0.10–0.32
Any disorder		
Sex main effect	1.67	1.38–2.04

Nevertheless, in both groups women were more likely to have a mood disorder than men were; in the adopted group the odds ratio was 1.64 (95% CI=1.16–2.33), and in the nonadopted group it was 4.17 (95% CI=1.79–9.09).

The odds ratio for substance dependence or abuse indicated that the likelihood of having such a disorder was 2.05 times as high in the adoption group as in the general population. We also found that men and younger subjects were more likely than women and older subjects to meet the criteria for substance dependence or abuse.

No significant difference for the diagnosis of disruptive disorder was found between adoptees and nonadoptees. In both groups men were much more likely to meet the criteria for a disruptive disorder than were women.

We also examined all diagnoses together. Subjects with at least one diagnosis were included in the diagnostic category “any disorder.” While adoptees with low and middle parental socioeconomic status in childhood did not differ from the comparison subjects in the general population, adoptees with high parental socioeconomic status were 2.17 times as likely to meet the criteria for a disorder than nonadoptees with high parental socioeconomic status. In the adoption group, the probability of having a psychiatric disorder increased with higher socioeconomic status—low, 22.8%; middle, 29.3%; high, 30.7%—while in the general population the probability decreased—low, 24.5%; middle, 23.6%; high, 17.0%. However, for

these trends did not reach significance for the adopted subjects (χ^2=2.98, df=1, p=0.09) or the nonadopted subjects (χ^2=3.82, df=1, p=0.051).

To investigate whether comorbidity was more common in the adoptees than in the nonadoptees, we took into account the number of diagnoses per subject (from different groups of diagnoses). In the adopted group 28.5% had more than one diagnosis, compared with 20.3% in the general population. However, the difference between the two groups was not significant (χ^2=3.59, df=1, p=0.06).

Discussion

Young adult intercountry adoptees were one and a half to nearly four times as likely to show serious mental health problems, especially anxiety and mood disorders and substance abuse and dependence, as are nonadoptees of the same age. The risk varied by diagnostic group, sex, socioeconomic status, and age. The largest risks were for anxiety disorders, mood disorders, and substance abuse and dependence. These findings are consistent with those by Hjern et al. (2002), who reported that intercountry adoptees were more likely than nonadoptees to show serious mental health problems; the odds ratios were 3.2 (95% CI=2.9–3.6) for hospital admittance for a psychiatric disorder, 5.2 (95% CI=2.9–9.3) for drug abuse, and 2.6 (95% CI=2.0–3.3) for alcohol abuse. Our study differed from that of Hjern et al. in the design of the adoption cohort and the use of standardized psychiatric interviews.

Contrary to our findings when the sample was much younger (ages 14 to 18 years), in the present study the adoptees did not run a greater risk for meeting the criteria for a disruptive disorder. The 12-month prevalences for antisocial personality disorder were 5.4% for adopted and 5.0% for nonadopted men and 1.0% for adopted and 1.3% for nonadopted women. In adolescence, the adoptees were significantly more likely to have more parent reports and self-reports of delinquent and aggressive behaviors than were nonadopted adolescents of the same age and sex (Versluis-den Bieman & Verhulst, 1995). There are a number of possible explanations for this finding. The first is that many antisocial adoptees limited their problematic behavior to adolescence and either discontinued showing psychopathology or changed from one kind of problematic behavior to another form of psychopathology as they grew older. According to Moffitt (Moffitt, 1993), antisocial behavior can be divided into adolescence-limited and life-course-persistent behavior. It is possible that the higher number of adoptees in adolescence with delinquent and aggressive behaviors reflects only a higher rate of adolescence-limited antisocial behavior. Second, it is possible that adoptees tend to underreport unwanted behaviors to a greater degree than nonadopted

individuals. An indication of this tendency can be found in our earlier study, in which adopted adolescents reported less disruptive behavior than was indicated by their parents, whereas in the general population no clear differences between parents' reports and adolescents' self-reports of these behaviors were found (Versluis-den Bieman & Verhulst, 1995).

Adopted men were much more likely to meet the criteria for a mood disorder than nonadopted men, while for women there was no significant difference between adoptees and nonadoptees in the prevalence of mood disorders. The percentage of adopted men with a mood disorder (7.8%) was not much lower than the percentage of nonadopted women with a mood disorder (8.5%). The female-over-male preponderance in the nonadopted sample (odds ratio=4.17) was much greater than that in the adopted sample (odds ratio=1.64). This suggests that males but not females show greater vulnerability to early negative life experiences or to adoption specifically, resulting in affective problems. A similar trend was found for anxiety disorders, but the effect of the interaction between sex and adoption status on the presence of anxiety disorders was not significant (p=0.10).

In a large sample of intra- and intercountry adolescent adoptees in the United States Miller et al. (Miller, Fan, Christensen, Grotevant, & van Dulmen, 2000) also found that adoptive males had less favorable outcomes, compared to the general population, than adoptive females. They found that effect sizes, reflecting differences between adopted and nonadopted individuals, were larger for boys than for girls in regard to substance use, psychological well-being (including emotional distress), and some externalizing behavior.

Sex differences in the occurrence of factors reflecting early adverse experiences, including age at placement in the adoptive family and experiences of neglect or abuse in the child's country of origin (Verhulst et al., 1992), could not explain the sex difference in vulnerability to mood disorders in our study. Males were not more likely to be older at placement (males, mean=27.7 months, SD=23.5; females: mean=29.1 months, SD=24.2) (F=1.13, df=1, 1482, p=0.29), to be neglected (males, 47.1%; females, 46.2%) (χ^2=0.07, df=1, p=0.80), or to be abused (males, 13.4%; females, 11.7%) (χ^2=0.52, df=1, p=0.47). Although the occurrence of early adverse experiences did not differ between males and females, it might still be possible that the same experiences have different effects on males and females. Because we did not have information on the biological parents of the adopted children, we cannot rule out the possibility that gender differences in the genetic risk for mood disorders in the adoption sample were different from gender differences in genetic risk in the general population sample. This would be the case, for example, if mothers who were depressed were more inclined to abandon their sons than their daughters. However, it is

unlikely that this kind of selection is responsible for the large gender difference in the risk for depression among the adoptees. It seems likely that environmental influences associated with adoption played a role in the emergence of mood disorders in males and less so in females. We do not know yet whether preadoption or postadoption experiences or both have had the greatest influence on later functioning.

This greater vulnerability to affective symptoms for adopted males than for females was already present when the subjects in our sample were much younger. In the previous assessment when the subjects were 14 to 18 years old, we also found that the proportions of adoptees with high levels of parent-reported and self-reported anxiety and depression were greater for adopted than nonadopted subjects among the boys but not among the girls (Versluis-den Bieman & Verhulst, 1995). There is accumulating evidence that childhood depression and adolescent depression have different etiologies, with genetic factors being more important for depression emerging after puberty than for prepubertal depression, and that this is especially so for girls (Rutter, 2003). The results of the present study support the notion that we should not base assumptions concerning the mechanisms leading to depression in females on findings from males.

Adoptees with a background of high parental socioeconomic status were more at risk for later psychiatric disorder than were nonadopted individuals who had parents with high socioeconomic status, whereas adoptees with low or middle parental socioeconomic status did not differ from their counterparts in the general population. For individual diagnoses this interaction was not significant. For disruptive disorders a nonsignificant trend was found ($p=0.10$).

In previous research on this sample we found that adopted children from families with lower socioeconomic status showed better academic performance, had fewer school problems, and were more socially competent than adopted children from families with higher socioeconomic status, whereas in the general population we found that children with higher parental socioeconomic status performed better in school and had fewer problems (Verhulst et al., 1990a). Similar findings have also been reported for social adjustment (Hjern et al., 2002) and school functioning (Bohman, 1972).

An explanation for the poorer functioning of adoptees with high socioeconomic status could be that parents with high socioeconomic status put higher demands on their children and have higher expectations of them (Sparkes, 1999). Westhues and Cohen (1997) found that adoptees were less likely than their siblings to report parent satisfaction with their school

performance. Chronic feelings of not being able to satisfy parental standards may be an important stress factor influencing the adoptees' development.

Limitations

The main limitation of the current study is the selective attrition in the sample. The completers had relatively low scores for parent-reported problems at the initial assessment, whereas those who dropped out had relatively high levels of parent-reported problems at the initial assessment. Consequently, it is possible that our results are an underrepresentation of the mental health disorders in young adult adoptees. Another limitation is that the cell sizes for specific DSM-IV disorders were too small to permit analyses on specific disorders. Finally, no data were available for intracountry adoptees in the Netherlands.

Conclusions and Clinical Implications

Although internationally adopted children were found to be at risk for having psychiatric disorders in adulthood, it should be stressed that the majority did not show serious mental health problems. This is surprising, given the adverse circumstances in which the majority of these children lived the first part of their lives (Verhulst et al., 1992). For children who did not have a permanent and satisfactory home in their country of origin, intercountry adoption is a good alternative (Tizard, 1991).

An important implication of this study is that (prospective) parents of adopted children, as well as clinicians and policy makers, should be aware of the fact that internationally adopted children have a greater risk of developing serious long-term mental health problems than their peers from the general population. The potentially beneficial effects of early recognition and adequate intervention for mental health problems in internationally adopted children need to be investigated.

The finding that adoptees who grow up in families with high socioeconomic status may experience more problems than those whose parents have low or middle socioeconomic status indicates that an environment associated with high parental socioeconomic status does not automatically give adopted children better developmental opportunities than other environments. This result stresses the importance of environmental influences on the development of mental health problems.

Biological and environmental factors in the etiology of depression in female adults need not be the same as biological and environmental factors in the etiology of depression in male adults. The possibility that genetic factors may play a less prominent role in the etiology

of depression in male adults than in female adults, together with our finding that males seem more vulnerable to adoption-related environmental influences, opens up interesting perspectives for studying the role of environmental factors in the emergence of depression in males in general.

In interpreting and generalizing the results of the present study, it is important to realize that changes in adoption practice and postadoption care have taken place in the last few decades. In the 1970s intercountry adoption was a new phenomenon. Most adoptive parents were ill prepared for the problems they would encounter, and adoptees and their families received little support in those early days. At present, in some countries (e.g., Norway and the Netherlands) parents are informed about the increased risks of mental health problems, in addition to other aspects of adoption, in a preparatory course (Saetersdal & Dalen, 2000). Sometimes special counseling after the child's arrival is available. Furthermore, in recent decades more information on the possible consequences of intercountry adoption has become available and parents may be less reluctant to seek help for mental health problems in their children. It may be that better preparation of adoptive parents and greater support for adoptees and their families who are in need of help have a positive influence on the development of children who are currently being adopted. Nevertheless, many other aspects of intercountry adoptions, including the placement in a new family, the transition from one country to another, ethnic differences, and the often adverse circumstances in the country of origin, may still place adopted children today at risk for serious mental health problems.

3 Social functioning in young adult intercountry adoptees compared to nonadoptees

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Chapter 3
Social functioning in young adult intercountry adoptees compared to nonadoptees

Abstract

Using data from a large adoption and general population cohort, we compared the social functioning of 24-30 year old intercountry adoptees with that of same-aged nonadoptees in the Netherlands. Adoptees were less likely to have intimate relationships, to live with a partner and to be married than nonadoptees. However, adoptees were not more impaired in their social contacts than nonadoptees. The educational and professional attainment of the adoptees was on par with that of the general population. Adopted males showed somewhat less favorable outcomes than adopted females.

Introduction

Since World War II children have been adopted from one country into another. In the first decades, this pertained to few children, followed by a rapid increase of intercountry adoptions since the 1970s(Selman, 2000). Nowadays, worldwide, around 30,000 children a year are internationally adopted. The Netherlands is one of the countries with a high number of intercountry adoptees in relation to its total population. In the Netherlands, the adoption ratio (number of adoptions per 1,000 live births) is in the same range as in the USA (respectively 4.6 and 4.2) (Selman, 2002). In 2004, 1,307 foreign-born children were adopted by Dutch parents. In total, more than 30,000 intercountry adoptees live in the Netherlands, mainly from Asia and Latin America (Ministerie van Justitie, 2004).

In the 1980s, when many adopted children entered adolescence, concerns about the mental health of intercountry adoptees arose. Clinicians reported overrepresentation of adoptees in mental health settings and some adoptive parents expressed worries about their children through the media. As a result, studies were undertaken to assess the mental health of intercountry adoptees in childhood and adolescence. Not all results were unambiguous, but several studies reported more problem behavior in intercountry adopted children and adolescents than in children and adolescents from the general population (Bimmel et al., 2003; Fensbo, 2004). Recently, since a large number of intercountry adoptees has entered adulthood, a few studies that focused on the mental health of intercountry adoptees in (young) adulthood have appeared. In the first large scale studies of mental health in young adult intercountry adoptees, increased risks for psychiatric disorders were reported (Hjern et al., 2002; Lindblad et al., 2003; Tieman, van der Ende, & Verhulst, 2005).

If intercountry adoptees have a greater likelihood for having psychiatric disorders, the question arises how they function in other areas, including social adjustment, and educational and professional attainment. Lindblad et al. (2003) conducted a study on the family and labor market situation, health problems, and education of Swedish adult intercountry adoptees. Based on data from national registers, the authors concluded that international adoptees were longtime recipients of social welfare and that their level of education was at par with that of the general population, but was lower when adjusted for parental socio-economic status (SES). A study that focused on psychosocial outcomes and achievement of intracountry adoptees in adulthood was conducted in Britain (Collishaw, Maughan, & Pickles, 1998; Maughan, Collishaw, & Pickles, 1998). The authors reported that intracountry adopted females had higher adult educational and vocational qualifications than nonadopted females, while intracountry adopted males had qualifications similar to those of nonadopted males. After adjustment for SES, no differences in qualifications between adoptees and nonadoptees were found. Furthermore, adoptive females showed very positive adult adjustment across all domains, whereas adopted males were more likely to have faced multiple periods of unemployment and to have been dismissed from a job. The social supports of adopted men were also more restricted than those of nonadopted men. The comparability of findings for intracountry adoptees versus intercountry adoptees is limited due to the different backgrounds of the adoptees in each sample.

In the present study, we compared (1) sociodemographic factors, including family composition, relationship obtainment, educational and professional attainment; and (2) social functioning in several areas of daily life, including family functioning, parental functioning, relationships with others, and functioning in housekeeping and leisure time, of young adult intercountry adoptees versus same-aged young adults from the general population.

Methods

Sample and procedure

Adoption sample. The present study is part of a longitudinal study that started in 1986 in The Netherlands. The original target sample consisted of all children (n = 3,519) legally adopted by non-relatives in The Netherlands and born outside The Netherlands between January, 1 1972 and December, 31 1975. Children were selected from the central adoption register of the Dutch Ministry of Justice. Of the 3,309 parents reached, 2,148 participated in the study (64.9%). Children were aged 10-15 years. After the first measurement, the sample was

approached again in 1989/1990 (time 2). For details on the initial sampling procedure, see (Verhulst et al., 1990a).

During October 1999 and April 2002, with a mean interval of 13.9 years, we sought contact to all subjects in the original sample of 2,148, except 15 who had died, 13 who were mentally retarded, 72 who had emigrated, 100 who had requested at previous stages to be removed from the sample, 59 who were untraceable, and 4 of whom we were uncertain that they were informed about the fact that they were adopted. Of the approached subjects, 1,521 participated in the study, 288 refused to participate and 76 did not respond. Thus the response rate was 74.3% of the time 1 sample, corrected for deceased subjects, mentally retarded individuals and subjects who had emigrated.

In this study, we focused on information obtained through questionnaires, completed by 1,417 subjects. Table 3.1 gives the main demographic features of this sample.

General population sample. For comparison with the adoption sample we used the data of a general population sample, approached between February and May 1983, from the province of Zuid-Holland, which encompasses over 3,000,000 people living in environments ranging from urban to rural. Using municipal registers that list all residents, 100 children of each sex at ages 4 to 16 (total n = 2,600) and of Dutch nationality were randomly selected. Of the 2,447 parents reached, 2,076 (84,8%) provided usable information. After the first measurement, the sample was approached again in 1985 (time 2), 1987 (time 3), 1989 (time 4), 1991 (time 5) and 1997 (time 6). For details of the initial sampling and data collection procedure, see (Verhulst et al., 1985).

In a previous comparison, all 10- to 15-year-olds (n = 933) of the 2,076 subjects from the general population sample in 1983, were selected for comparison with the adoption sample in 1986 (Verhulst et al., 1990a). For the present study we selected the same comparison group from the time 6 sample (1997) (Hofstra et al., 2000). Questionnaires were filled out by 713 subjects. This comprised 80.1 % of the original comparison group, corrected for deceased individuals, subjects with a mental handicap and subjects who had emigrated. The mean interval of follow-up for the comparison group was 14.7 years. Table 3.1 summarizes the demographic characteristics of this sample.

Table 3.1 Demographic Features of Adopted and Nonadopted Young Adults

	Adopted		Nonadopted	
	N	%	N	%
Sex				
Female	797	56.2	387	54.3
Male	620	43.8	326	45.7
Age				
22-24	142	10.0	42	5.9
25	292	20.6	117	16.4
26	411	29.0	130	18.2
27	307	21.7	113	15.8
28	183	12.9	129	18.1
29	71	5.0	115	16.1
30-32	11	0.8	67	9.4
Parental SES				
Low	127	9.0	240	33.8
Middle	339	23.9	235	33.1
High	951	67.1	236	33.2
Total	1417	100	713	100

Note. Information on parental SES is missing for two subjects in the nonadopted group.

Attrition

To investigate selective attrition in the adopted and nonadopted group, we compared "dropouts", i.e. all subjects who did not fill out the questionnaires, with exclusion of those who had died, were mentally retarded or had emigrated and "remainers" for both groups with respect to sex, age at time 1, school functioning at time 1 and their parents' socio-economic status (SES) at time 1. School functioning was assessed with questions about grade repetitions and special education on the Child Behavior Checklist (CBCL) (Achenbach, 1991a). . SES was assessed using a 6-point scale of parental occupation (Van Westerlaak et al., 1975), with 1=lowest SES.

More females than males participated in both follow-ups. In the adopted group 74.4% of the females and 63.5% of the males participated ($\chi^2 = 28.53$; $df = 1$; $p < .001$); in the nonadopted group 85.6% and 74.4% respectively ($\chi^2 = 17.83$; $df = 1$; $p < .001$). In both groups dropouts and remainers did not differ significantly in age distribution (adoptees: 12.37 vs. 12.35 respectively ($t = .39$; $df = 2046$; $p = .696$) and nonadoptees: 12.56 vs. 12.39 ($t = 1.2$; $df = 888$; $p = .231$)). However, in both groups the dropouts had somewhat lower SES than remainers (adoptees: 4.51 vs. 4.65 respectively ($t = -2.1$; $df = 1166.3$; $p = .037$) and nonadoptees: 3.27 vs. 3.54 ($t = -2.1$; $df = 884$; $p = .036$)). Furthermore, in the adopted group the dropouts more often attended special education than remainers (14.1 % vs. 9.9 %; $\chi^2 = 7.85$; $df = 1$; $p = .005$), while in the nonadopted group there was no significant difference between dropouts and remainers (4.0 % vs. 3.8 %; $\chi^2 = 0.02$; $df = 1$; $p = .884$). However, no differences in grade repetition between dropouts and remainers were present in both the

adoption (25.0 % vs. 22.8 %; $\chi^2 = 1.10$; $df = 1$; $p = .294$) and the comparison groups (25.6 % vs. 19.1 %; $\chi^2 = 3.60$; $df = 1$; $p = .058$).

Instruments

Socio-demographic characteristics. The following socio-demographic characteristics were assessed: marital status (married, divorced or unmarried); living situation (alone (with or without children), with partner (with or without children) or with parents (with or without children)); relationship, defined as a relationship which had lasted for at least a year; biological children (having one or more biological children); education (highest completed education); primary occupation (paid labor, job seeking, student, housekeeping, disabled or unpaid labor); profession (level of profession, only for those whose primary occupation was paid labor). Educational level was scored: low (elementary school, lower level of secondary education or lower level of vocational training), middle (medium level of secondary education or vocational training) or high (university or higher level of vocational training). Professional level was scored low, middle or high, according tot the Dutch Standard Occupational Classification (Centraal Bureau voor de Statistiek, 1992).

Social functioning. Social functioning was assessed using the Groningen Questionnaire about Social Behavior (GQSB;(De Jong & Van der Lubbe, 2001; Van der Lubbe, 1995)). The GQSB is based on the Groningen Social Disabilities Schedule (GSDS), a semi-structured interview (Wiersma, de Jong, & Ormel, 1988). It contains 115 items divided in 14 subscales covering different areas of functioning: leisure time activities (e.g. “I enjoyed my leisure time”); self-care (i.e., bodily care and hygiene, management of personal possessions, including direct living surroundings; e.g. “I looked well-groomed”); civic sense (i.e., role as citizen, interest and participation in society; e.g. “I was well-informed on the daily news”); parental functioning “I was well-informed about the the problems of my children”); family functioning (for subjects who do not live alone and for subjects who live alone; e.g. “I made my house cozy for me/us”); functioning without partner (e.g. “I liked living without a partner”); relationship with partner (e.g. “I could get along well with my partner”); relationship with parents (e.g. “If necessary I could get social support from my parents”) ; relationship with siblings (e.g. “I had a fight with one of my siblings”); relationship with friends (e.g. “I had contact (personally or by phone) with my friends”); education (e.g. “My study results were good”); employment (e.g. “I could manage to get my work done in time”); and housekeeping (e.g. “Others had to do the housekeeping, because I could not cope with

it"). Subjects were asked to indicate whether items were applicable to their situation within the past four weeks. Each item has four response options, ranging from never to always. By summing the scores, a total score for each subscale was derived. Higher scores indicate greater impairment. Not all scales apply to all subjects. For instance, parental functioning does not apply to subjects who do not have children. The validity of the GQSB appeared to be good for all scales, according to the correlations with the GSDS (between r =.45 and r =.76), except for "living without a partner" (r=.13). The test-retest reliability showed that all scales had at least a correlation of r =.60, and eight scales had a correlation above r =.80. The internal consistency appeared to be good for all scales, Cronbach's alphas were between .59 and .97(De Jong & Van der Lubbe, 2001; Van der Lubbe, 1995).

Statistical analyses

Multinomial logistic regression analyses were used to predict socio-demographic characteristics from adoption status (nonadopted (scored 0) and adopted (scored 1)), controlled for effects of sex (male (scored 1) and female (scored 0)), age (lowest age scored 0; as a continuous variable) and parental SES at time 1 (low, middle and high; as a categorical variable). We used standard logistic regression for the dichotomous variables relationship and biological children. For the ordinal variables education and profession ordinal regression would be most appropriate; but since the test of parallel lines was significant, indicating that the slope coefficients are not the same across response categories, so we used multinomial logistic regression for these variables as well. If the multinomial logistic regressions indicated a significant effect for adoption status, we used logistic regression analyses to compare each category with all other categories taken together. In this way relevant dichotomies were tested, for example: married vs. not-married or divorced vs. not-divorced. For interpretation of the effects, odds ratios, with 95% confidence intervals, were computed. Linear regression analyses were used to predict GQSB scales from adoption status, controlled for effects of sex, age and SES. For interpretation of the effect, the percentages explained variance were computed. Furthermore, for both the socio-demographic characteristics as for the GQSB scales, interactions of adoption status with sex and age were tested. If we found a significant interaction effect in the multinomial regressions, we performed logistic regression analyses on each categories separately to examine the size and direction of the interaction. These interactions were controlled for effects of sex, age and SES. To make sure that controlling for age and SES fully accounts for the demographic differences between adoptees and

nonadoptees, we have also performed our analyses on groups matched on age and SES. All results were in the same direction and of the same size.

Results

As shown in table 3.2, 14 % of the adoptees and almost 32 % of the nonadoptees were married. Controlled for sex, age and SES effects, adoptees were 1.9 times less likely to be married than nonadoptees. Adoptees were also less likely to be living with a partner than nonadoptees and fewer adoptees had a relationship which had lasted for at least one year. Nevertheless, adoptees and nonadoptees were equally likely to be living with parents. Adoptees were less likely to have biological children than nonadoptees (13.7 % vs. 22.1 %), but controlled for sex, age and SES this difference was not significant. For marital status, living situation, biological children and relationship no significant interactions were found.

The educational level and professional level for adoptees were the same as for nonadoptees, even after controlling for SES (table 3.2). For educational level we found a significant interaction between adoption status and sex. In the adoption group males were 1.5 times more likely to have low educational level than females, but no effect of sex was present in the comparison group. As a result, adopted males were more likely to have a low educational level than nonadopted males, while no significant difference existed between adopted and nonadopted females.

The distributions of primary occupations for adoptees versus nonadoptees were very similar. The differences in the categories student and housekeeping were not longer significant after controlling for SES and age. No significant adoption status by sex or adoption status by age interactions were found for primary occupation.

In table 3.3, the linear regression analyses of the GQSB are presented. On three scales adoptees scored significantly lower than nonadoptees. Thus, adoptees functioned better with respect to self-care, functioning without partner and relationship with friends. On the scales family functioning, relationship with parents and relationship with siblings adoptees showed a greater impairment than nonadoptees. In the interaction analyses, significant adoption status by sex interactions were found for functioning without a partner and for relationship with friends. The interactions showed that adopted males and nonadopted males did not differ in impairment, while adopted females were found to be less impaired than nonadopted females in functioning without a partner and in relationships with friends.

All mean scores of adoptees and nonadoptees on the GQSB were very close given the possible range of scores. Moreover, all significant effects explained less than 1 % of the variance, which is a small effect according to the criteria of Cohen (1988). In other words, being adopted only explains a very little part of the differences between subjects.

Table 3.2 Logistic regression analyses of socio-demographic characteristics

	Adoptees %	Nonadoptees %	Odds Ratio Adoption status	95 % CI Adoption status	X^2 Adoption status
Marital Status					**25.168***
Married	14.0	31.9	.528*	.411 - .678	
Divorced	1.0	1.1	1.657	.593 – 4.627	
Unmarried	84.9	66.9	1.808*	1.414 – 2.314	
Living situation					**49.587***
With partner	47.6	67.3	.521*	.421 - .643	
Alone	35.5	18.8	2.206*	1.740 – 2.797	
With parents	9.0	9.0	.854	.599 – 1.219	
Other	7.9	4.9	-		
Relationship (> 1 year)	54.6	72.9	.479*	.385 - .595	
Biological Children	13.7	22.1	.910	.692 – 1.198	
Education					**1.328**
Low	27.3	31.3			
Middle	42.6	42.1			
High	30.1	26.6			
Primary Occupation					**8.665**
Paid labor	74.9	77.1			
Job seeking	3.6	3.2			
Student	10.2	5.4			
Housekeeping	4.2	7.5			
Disabled	3.0	1.3			
Unpaid labor	0.8	0.6			
Other	3.3	4.8			
Profession					**5.608**
Low	25.3	26.6			
Middle	44.8	49.4			
High	29.9	24.1			

* p< .001; Effects for sex, age and SES are included in all models

Table 3.3 Linear regression analyses of Groningen Questionnaire about Social Behavior (GQSB)

	N (total)		Min-Max Score	Mean		P	Explained Variance (adoption status)
	Adoptees	Nonadoptees		Adoptees	Nonadoptees		
Self care	1409	713	3-12	3.97	4.22	< .001	0.9 %
Civic sense	1393	707	5-20	7.69	7.83	.060	-
Family functioning	900	576	11-44	15.63	15.10	.008	0.4 %
Family functioning, living alone	455	130	9-36	14.07	13.42	.071	-
Parental functioning	195	158	7-28	8.56	8.61	.355	-
Functioning without partner	468	140	5-20	9.16	9.92	.032	0.7 %
Relationship with partner	898	565	11-44	15.85	15.31	.108	-
Relationship with parents	1277	693	7-28	10.79	10.37	.025	0.3 %
Relationship with siblings	1215	654	7-28	12.09	11.52	.013	0.3 %
Relationship with friends	1376	696	7-28	10.47	10.93	.006	0.4 %
Education	261	117	7-28	13.04	12.48	.097	-
Profession	1101	570	8-32	11.67	11.73	.558	-
Housekeeping	1179	605	5-20	8.33	8.15	.185	-
Leisure time	1358	705	6-24	10.00	9.65	.119	-

Note. A higher score indicates a higher impairment
Sex, age and SES were included in all models.

Discussion

Overall our results indicated that in most areas of psychosocial functioning young adult intercountry adoptees function as good as, or have achieved the same as, nonadoptees of the same age. However, in some domains we found differences between both groups and, furthermore, differences between adopted males and adopted females were found.

Marriage, intimate relationships and parenthood

Young adult intercountry adoptees were less likely to have intimate relationships, to live with a partner and to be married than nonadoptees. Adoptees thus are less likely to commit themselves to a partner. An explanation could be that adoptees more often have difficulties in entering or maintaining close relationships. This explanation was also given by Lindblad et al. (2003), who reported that young adult intercountry adoptees were less likely to be married than nonadoptees. Attachment problems, due to the early separation of caregivers and the quality of pre-placement care, could be responsible for the problems with close relationships (Howe, 1998). Yet, the GQSB results did not support this explanation. Based on their own reports, adoptees were less impaired when living without a partner than did nonadoptees. This finding could indicate that adoptees seem satisfied with living without a partner and seem less in need of a partner than nonadoptees. Another explanation could be that if adoptees have trouble with close relationships then they may find living alone less stressful than nonadoptees.

Although adoptees were less likely to live with a partner, the frequency of living with parents did not differ between adoptees versus nonadoptees. This finding was contrary to that in the Swedish study (Lindblad et al., 2003), where adoptees were 1.2 times more likely to live with their parents than nonadoptees.

Although adoptees were less likely to have intimate relationships than nonadoptees and were less likely to be married, they were just as likely to have become parent as nonadoptees. If we do not adjust for socio-economic status, adoptees were less likely to have biological children than nonadoptees. These findings are partly contrary to those of Lindblad et al. (2003). Even if they corrected for SES they found that adoptees were less likely to have children. In a study on the effects of different family structures on adulthood childbearing, adoptees' childbearing was found not to be different from that of biological-parented respondents. For all different family structures SES was found to be an important predictor of childbearing; however for adoptees this relationship was even stronger than for biological-

parented respondents (Schmitz, 2005). In our study, we found that adoptees were not more impaired in their functioning as parents than nonadoptees were.

Relationships with parents, siblings and friends

As mentioned before, attachment problems are often mentioned in adoption research (Howe, 1998), which may make adoptees more vulnerable to problems in close relationships. Collishaw et al. (1998) found that adult intracountry adopted males perceived less social support than males from the general population. In our study, adoptees were found to be somewhat more impaired in relationships with parents and siblings than nonadoptees. However, their relationships with friends were on average somewhat better than in the general population. This indicates that the impairment in the relationships with parents and siblings is not necessarily due to attachment problems. It is also possible that the non-genetic kinship, the different appearance and different traits, between adoptees and their parents and siblings make adoptees feel as not really belonging to the family (Brodzinsky, Schechter, & Henig, 1992). This could influence their relationships with parents and siblings. However, the differences between adoptees and nonadoptees with respect to their relationships were very small, and the main conclusion is that young adult intercountry adoptees were not much impaired in their social contacts. In a study in Canada of young adult intercountry adoptees comparable results were found (Westhues & Cohen, 1997). Adoptees showed a lower level of "family integration", i.e. a sense of belonging within the family, than their nonadopted siblings. Nevertheless, differences were very small and the authors concluded that adoptees had a strong sense of belonging in the family, although it was somewhat lower than that of nonadopted siblings.

Profession and Education

Adoptees in our study reached a same educational and professional level as nonadoptees, even if we corrected for socio-economic status. Only, adopted males achieved somewhat lower educational levels than nonadopted males. Adoptees' social functioning in work and educational settings is comparable to that of nonadoptees. This finding is contrary to our previous results in this sample. In early adolescence, these adopted children were found to be less competent in academic functioning than nonadopted children (Verhulst et al., 1990a). Apparently, this disadvantage has been made good later in life. However, we must realize that our attrition analyses showed that adoptees who attended special education more often dropped out of our study than adoptees who did not attend special education. Nevertheless,

still more adoptees in our follow-up attended special education in childhood than did nonadoptees (9.9% vs. 3.8 %). This indicates that indeed a lot of adoptees were able to achieve comparable educational levels compared to nonadoptees, despite their disadvantage. Results from other studies in adulthood are not conclusive. Rorbech (1991) reported that 18 to 25 year old intercountry adoptees in Denmark were more likely to leave school without starting vocational training or higher education. Lindblad et al. (2003) found similar educational level for adoptees and nonadoptees, but lower level for adoptees after adjustment for SES. It remains unclear what causes these different findings.

Sex differences

In this study, significant adoption status by sex interaction were found. Adopted males were more likely to have low education, while adopted females did not differ from nonadopted females. Besides, adopted females were found to be less impaired than nonadopted females in functioning without a partner and in relationships with friends, whereas no difference existed between adopted males and nonadopted males.

Other studies on young adult adoptees have found comparable sex differences in functioning. In our previous study (Tieman et al., 2005), we found that adopted males were 3.8 times more likely to have a mood disorder than nonadopted males, while for females there was no significant difference between adoptees and nonadoptees. Lindblad et al. (2003) and Collishaw et al. (1998) found results in the same direction for employment. Collishaw et al. (1998) also found less positive adjustment of males with respect to social support. In adolescence more ambiguous results are reported (Bimmel et al., 2003). In summary, outcomes in adulthood seem to be better for adopted females than for adopted males. This suggests that males more than females show vulnerability to early negative life experiences, to adoption as such, or to influences such as discrimination resulting in less positive adjustment.

Limitations

The main limitation of the current study is the selective attrition in the sample. Those who dropped out the study had more often attended special education in childhood. Furthermore, in our previous study we also found that dropouts had relatively high parent reported emotional and behavioral problems at initial assessment. Consequently, it is possible that our results are an underrepresentation of impairment in young adult intercountry adoptees.

Conclusion

Remarkably, despite the high risk of psychiatric disorders in young adult intercountry adoptees (Tieman et al., 2005), their daily social functioning and attainment is on par with that of the general population. These findings suggest that young adult intercountry adoptees cope adequately with their psychiatric problems in daily life.

4 Nature versus nurture in educational achievement: A 14-year follow-up study of intercountry adoptees

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Chapter 4
Nature versus nurture in educational achievement: A 14-year follow-up study of intercountry adoptees

Abstract

Parental socio-economic status (SES) is a strong predictor of child educational achievement. To investigate whether this is due to nature or nurture, we prospectively studied the relationship between parental SES and children's educational achievement in an adoption (n=1399) and a general population cohort (n=704). In adoptees, no association between parental SES and educational achievement was found, while in the general population individuals with high parental SES were 8.4 times (95% confidence interval: 5.0-13.9) more likely to achieve high educational levels than those with low parental SES. This suggests that genetic kinship underlies the relationship between parental SES and educational achievement.

Introduction

Parental socio-economic status (SES) is one of the strongest predictors of educational and professional achievement of offspring. Parental SES is associated with quality of neighborhoods, schooling, parenting styles, parental educational involvement and single parenthood, which are all independent determinants of educational attainment of offspring (Sparkes, 1999). However, parents and their children share genes and thus gene-environment correlation or gene-environment interaction could also underlie the relationship between parental SES and educational success of the child. To disentangle the role of nature and nurture in educational achievement, adoption or twin studies can be used. Previous adoption studies consistently showed that intelligence is largely determinated by genetic factors (Loehlin, 1980). To our knowledge, educational or professional achievement has not been examined in adult adoptees. We studied the relationship between parental SES and their children's educational and professional achievement in a cohort of intercountry adoptees and a general population cohort across a 14-year time interval.

Table 4.1 Relationship between parental SES and children's educational achievement in an adoption and a general population cohort

	Education	*High Education*			*Profession*	*High Profession*		
	total N	N (%)	OR	95 % CI	total N[a]	N (%)	OR	95 % CI
General Population	704	188 (26.7)			541	131 (24.2)		
Parental SES								
low	237	22 (9.3)	1.0	referent	178	20 (11.2)	1.0	referent
middle	233	59 (25.3)	3.5	2.0-5.7	186	45 (24.2)	2.7	1.5-4.9
high	234	107 (45.7)	8.3	5.0-13.8	177	66 (37.3)	4.8	2.7-8.4
Adoptees	1399	421 (30.1)			1048	313 (29.9)		
Parental SES								
low	125	34 (27.2)	1.0	referent	102	26 (25.5)	1.0	referent
middle	334	98 (29.3)	1.1	0.7-1.7	263	76 (28.9)	1.1	0.7-1.9
high	940	289 (30.7)	1.2	0.8-1.8	683	211 (30.9)	1.3	0.8-2.0

Note. In the combined analysis, the interactions between adoption status and SES for educational level and professional level were significant (respectively $p < 0.001$and $p = 0.002$). Odds Ratios (OR) are adjusted for age and sex.

[a]For the analysis of profession only individuals with paid labor were included.

Method

The Dutch longitudinal adoption cohort consisted of all children legally adopted by non-relatives in the Netherlands and born outside the Netherlands between January 1, 1972 and December 31, 1975 (baseline response: 65%)(Verhulst et al., 1990a). Baseline measurements were conducted in 1986 and included an assessment of parental professional level. In the second follow-up in 1999-2002, the adoptees were questioned about their educational and professional achievement. In total, 1521 adoptees participated (follow-up response: 74%). The present analysis was based on 1399 subjects with complete data.

We used all 704 individuals of the Zuid-Holland general population cohort in the same age range as the adoption cohort as a comparison group. Information on parental professional levels was collected at baseline (1983, response: 84%)(Verhulst et al., 1985). We assessed the young adults' educational and professional achievement in the 1997 follow-up examination (response: 81%).

We used parental professional level as measure for SES. In both studies, parental professional level was scored as low, middle or high according to the scale of Van Westerlaak. We classified university degree and a high level of vocational training as high educational achievement of the offspring. Professional level of the offspring was coded according to the Dutch Standard Occupational Classification. For both studies, participants' informed consent and approval of the Medical Ethical Committee Erasmus MC was obtained.

Results

First, we studied the relationship of parental SES with educational and professional level of the offspring in the adoption and general population cohort with logistic regression, separately. Second, we combined the data and included an interaction term between adoption status and parental SES in the analyses of educational and professional achievement. All analyses were controlled for effects of sex and age.

Overall, we found no differences between the educational level of adoptees and nonadoptees (30.1% vs. 26.7% (table 4.1); adjusted odds ratio (OR): 0.9 (95% confidence interval (CI):0.7-1.1)). In the adoption cohort, parental SES was not related to educational achievement of the children. In the general population cohort, subjects with high parental SES were much more likely to achieve a high educational level than those with low parental SES. The results for professional achievement of the offspring showed a similar pattern.

Next we tested whether the results were consistent for country of origin, because an association of country of origin with the adoptees' adjustment has been reported (Sarri, Baik,

& Bombyk, 1998). Table 4.2 shows the results of an analysis stratified by the major countries of origin (South Korea, Columbia and Other). The overall level of education was lower for adoptees from Columbia (15.0%) and higher for adoptees from South Korea (39.8%) compared to adoptees from other countries (27.5%) (corresponding ORs were 0.5 (95%CI:0.3-0.7) for Columbia and 1.7 (95%CI:1.3-2.2) for South Korea compared to other countries). However, we found no effect of parental SES on educational achievement, whatever the country of origin.

Table 4.2 Relationship between parental SES and children's educational achievement stratified by country of origin

	Education	*High Education*		
	total N	N (%)	OR	95 % CI
Other	737	203 (27.5)		
Parental SES				
low	76	19 (25.0)	1.0	referent
middle	203	60 (29.6)	1.3	0.7-2.3
high	458	124 (27.1)	1.1	0.6-1.9
South Korea	475	189 (39.8)		
Parental SES				
low	33	14 (42.4)	1.0	referent
middle	99	32 (32.3)	0.6	0.3-1.4
high	343	144 (42.0)	1.0	0.5-2.0
Columbia	187	28 (15.0)		
Parental SES				
low	16	1 (6.3)	-[a]	-
middle	32	6 (18.8)	-	-
high	139	21 (15.1)	-	-

Note. Odds Ratios (OR) are adjusted for age and sex.

[a] Due to small cell size, ORs were not computed.

Discussion

In an adoption sample no gene-environment correlation is to be expected. Thus one can evaluate the non-genetic aspect of a social risk indicator such as parental SES. We found no relationship between parental SES and educational or professional achievement in our study of young adult intercountry adoptees. This indicates that the frequently reported relationship between parental achievement and the achievement of their children largely reflects genetic kinship. The results of the analysis stratified by country of origin are consistent with the overall findings. In none of the strata an effect of parental SES on educational achievement was found. However, we observed substantial differences in the adoptees' educational achievement depending on the countries of origin. This may be explained by the different situations in the countries in which parents gave up their child for adoption. In South Korea it

was not socially accepted to get a child outside wedlock. For this reason, unmarried mothers from all social classes gave up their children for adoption (Sarri et al.,1998). In Columbia, on the other hand, poverty was the most common reason to give up a child for adoption.

The results also suggest that the school system in The Netherlands is egalitarian; the educational chances of children do not depend on parents' SES. However, it is important to realize that adoptive parents have consciously chosen to become parents. Some factors normally associated with low SES, like single motherhood and less adequate parenting styles, are less frequent in adoptive families than in the general population. On the other hand, it is less likely that the relationship between SES and other social determinants, like income and neighborhood characteristics, differ between adoptive and nonadoptive parents. Furthermore, genetic factors best explain the comparatively poor educational achievement of adoptees growing up in families with a high SES.

5 Longitudinal course of problem behavior in intercountry adoptees

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Chapter 5
Longitudinal course of problem behavior in intercountry adoptees

Abstract

Background: *Knowledge of the course of problem behaviors in intercountry adoptees is limited.* ***Aims:*** *To determine the 14-year course of internalizing and externalizing problem behaviors in intercountry adoptees compared to nonadoptees and to determine sex and socioeconomic status differences.* ***Method:*** *A sample of initially 2,148 adoptees aged 10 to 15 years old, and a sample of 933 same aged nonadopted children were assessed three times. The Child Behavior Checklist was used in childhood and adolescence and the Young Adult Behavior Checklist in adulthood.* ***Results:*** *Internalizing problems in adoptees increased, while these remained stable in nonadoptees. Adoptees showed a smaller decrease of externalizing problems than nonadoptees. Especially adopted males and adoptees from middle and high socioeconomic status had the most problematic courses.* ***Conclusions:*** *Intercountry adoptees show higher levels of problem behavior than nonadoptees in childhood as well as in adulthood. Over time, differences in problem behaviors between adoptees and nonadoptees increased.*

Introduction

In adolescence, a meta-analysis showed that results on problem behavior of intercountry adoptees are not conclusive (Bimmel et al., 2003), whereas in adulthood several studies reported a high risk of severe mental health problems (Hjern et al., 2002; Tieman et al., 2005). The only studies to date that investigated the longitudinal course of problem behaviors of intercountry adoptees addressed childhood and adolescence (Jaffari-Bimmel, Juffer, van IJzendoorn, & Bakermans Kranenburg, 2004; Stams, Juffer, Rispens, & Hoksbergen, 2000; Verhulst & Versluis-den Bieman, 1995). No information is available on the course of problem behaviors of intercountry adoptees into adulthood. In the present study, we therefore (1) compared the longitudinal course of problem behaviors between intercountry adoptees and nonadoptees from childhood into adulthood (2) examined effects of sex and socioeconomic status (SES) differences within both groups.

Method

Sample and procedure

Adoption Sample. The present study is part of a longitudinal study that started in 1986 in the Netherlands. The original target sample consisted of all children (*n* = 3,519) legally adopted by non-relatives in The Netherlands and born outside The Netherlands between January, 1 1972 and December, 31 1975. Children were selected from the central adoption register of the Dutch Ministry of Justice. Of the 3,309 parents reached, 2,148 completed the Child Behavior Checklist (CBCL; 64.9%). Children were aged 10-15 years. For details on the initial sampling procedure, see Verhulst, Althaus et al. (1990a).

After the first measurement, the sample was approached again in 1989 and 1990 (time 2). The parents of the adoptees who participated at time 1 were approached again, except for 3 children who had died, 29 children who were untraceable, 8 children who had emigrated and 37 children from Thailand who participated in another academic study at the same time. Of the 2071 approached parents, 1538 filled out the CBCL (74,3 %). For details on the second measurement, see Versluis-den Bieman & Verhulst (1995).

During October 1999 and April 2002, with a mean interval of 13.9 years from the first measurement, we sought contact to all subjects in the original sample of 2,148, except 15 who had died, 13 who were mentally retarded, 72 who had emigrated, 100 who had requested at previous stages to be removed from the sample, 59 who were untraceable, and 4 of whom we were uncertain that they were informed about the fact that they were adopted. Of the approached subjects, 1521 participated in the study, 288 refused to participate and 76 did not respond. Thus the response rate was 74.3% of the time 1 sample, corrected for deceased subjects, individuals with intellectual disabilities and subjects who had emigrated

Of the participating adoptees 1358 (89,2%) gave permission to obtain information from their adoptive parents. For 1157 adoptees (85,2 %) parents returned questionnaires that included the Young Adult Behavior Checklist (YABCL). Complete information was available for 1115 adoptees.

General population sample. For comparison with the adoption sample we used the data of a general population sample (1983) from the province of Zuid-Holland, which encompasses over 3,000,000 people in environments ranging from urban to rural. Using municipal registers that list all residents, 100 children of each sex at ages 4 to 16 (total *n*=2,600) and of Dutch nationality were randomly selected. Of the 2,447 parents reached, 2,076 (84,8%) provided usable information. After the first measurement, the sample was approached again in 1985

(time 2), 1987 (time 3), 1989 (time 4), 1991 (time 5) and 1997 (time 6). For details of the initial sampling and data collection procedure, see Verhulst et al. (1985).

In a previous comparison between adopted and nonadopted subjects, all 10- to 15-year-olds (*n*=933) of the 2,076 subjects from the general population sample in 1983, were selected for comparison with the adoption sample in 1986. For the present study we selected the same comparison group from the time 1 (1983; *n* = 933), time 3 (1987; *n* = 562) and time 6 sample (1997; *n* = 596).

Instruments

Child Behavior Checklist. The CBCL (Achenbach, 1991a) is a questionnaire to be completed by parents of 4- to 18-years-olds and can be scored on 8 syndrome scales and 2 broad-band groupings of syndromes – Internalizing (consisting of the Withdrawn, Somatic Complaints and Anxious/Depressed scales) and Externalizing (consisting of the Delinquent and Aggressive Behavior scales). A Total Problem score is derived by summing the individual item scores. Good reliability and validity of the CBCL have been replicated for the Dutch translation (Verhulst, van der Ende, & Koot, 1996).

Young Adult Behavior Checklist. The YABCL (Achenbach, 1997)is an upward extension of the CBCL and has the same response format. It is designed to evaluate emotional and behavioral problems for ages 18 years and older. The YABCL can be scored on 8 syndrome scales and 2 broad-band groupings of syndromes- Internalizing (consisting of Anxious/Depressed and Withdrawn scales) and Externalizing (consisting of the Intrusive Behavior, Delinquent Behavior and Aggressive Behavior scales). A Total Problem score is derived by summing the individual item scores. Good reliability and validity for the American YABCL has been reported by Achenbach (1997). For the Dutch YABCL, (Heijmens Visser, van der Ende, Koot, & Verhulst, 2000) found an average Cronbach α across syndromes of .81 in a referred sample.

Statistical Analyses

To determine the course of problem behaviors across time, internalizing and externalizing problems scores were computed using items that were available in both instruments (CBCL and YABCL).

Of the 2,148 adoptees, complete information on three measurements was available for 922 adoptees. For 417 adoptees only information from time 1 was available, for 616 adoptees

information from time 1 and time 2 only and for 193 adoptees from time 1 and time 3 only. In the comparison group, originally 933 individuals, complete information was available for 427 nonadoptees, information on time 1 only for 202 nonadoptees, time 1 and time 3 only for 135 nonadoptees and time 1 and time 6 only for 169 adoptees. Thus, for a relatively large group of respondents information of one (adoption group: 37.7% and comparison group: 32.6%) or two time points (adoption group: 19.4% and comparison group: 21.7%) was missing.

We conducted multilevel analyses, with the procedure MIXED of SPSS 12.0 with adoption status, sex, age and parental SES at first measurement as covariates. We used the Estimated Means procedure to test whether mean differences between adoptees and nonadoptees were significant in childhood (aged 10 years) and adulthood (aged 30 years)

Table 5.1 Final models of multilevel analyses for internalizing problems and externalizing problems in intercountry adoptees versus nonadoptees

	Internalizing problems	Externalizing problems
Mean level of true initial status (intercept)	4.31***	8.77***
Increments to mean level:		
Adoption status (nonadoptees)	-1.11**	-3.18***
Sex (females)	.06	-3.26***
SES (low)	.11	-1.07*
SES (middle)	-5.39*	-.54
Adoption status (nonadoptees) * SES (low)	.68	2.73**
Adoption status (nonadoptees) * SES (middle)	.68	2.02**
Adoption status (nonadoptees) * Sex (females)	.11	1.58**
Estimated average rate of true change per year (slope)	.11***	-.11***
Increments to rate of true change:		
Adoption status (nonadoptees)	-.08**	-.05
Sex (females)	-.06**	.08***
SES (low)	-.10**	-.07
SES (middle)	-.02	-.02
Adoption status (nonadoptees) * SES (low)	.06	.00
Adoption status (nonadoptees) * SES (middle)	-.02	-.07
Adoption status (nonadoptees) * Sex (females)	.08*	.01

* $p < .05$; ** $p < .01$; *** $p < .001$

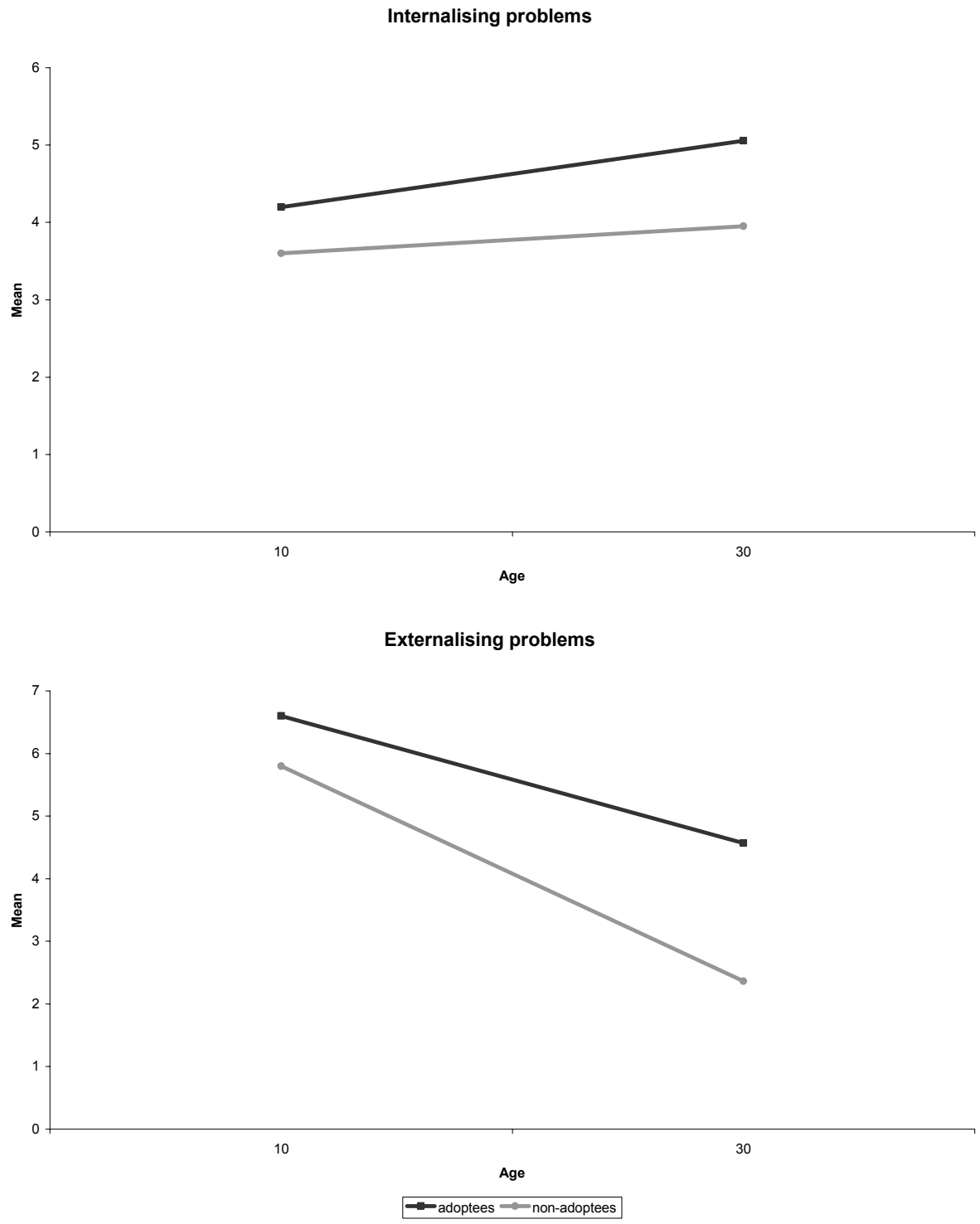

Figure 5.1 Mean Child Behavior Checklist and Young Adult Behavior Checklist scores of intercountry adoptees compared to nonadoptees from childhood into adulthood

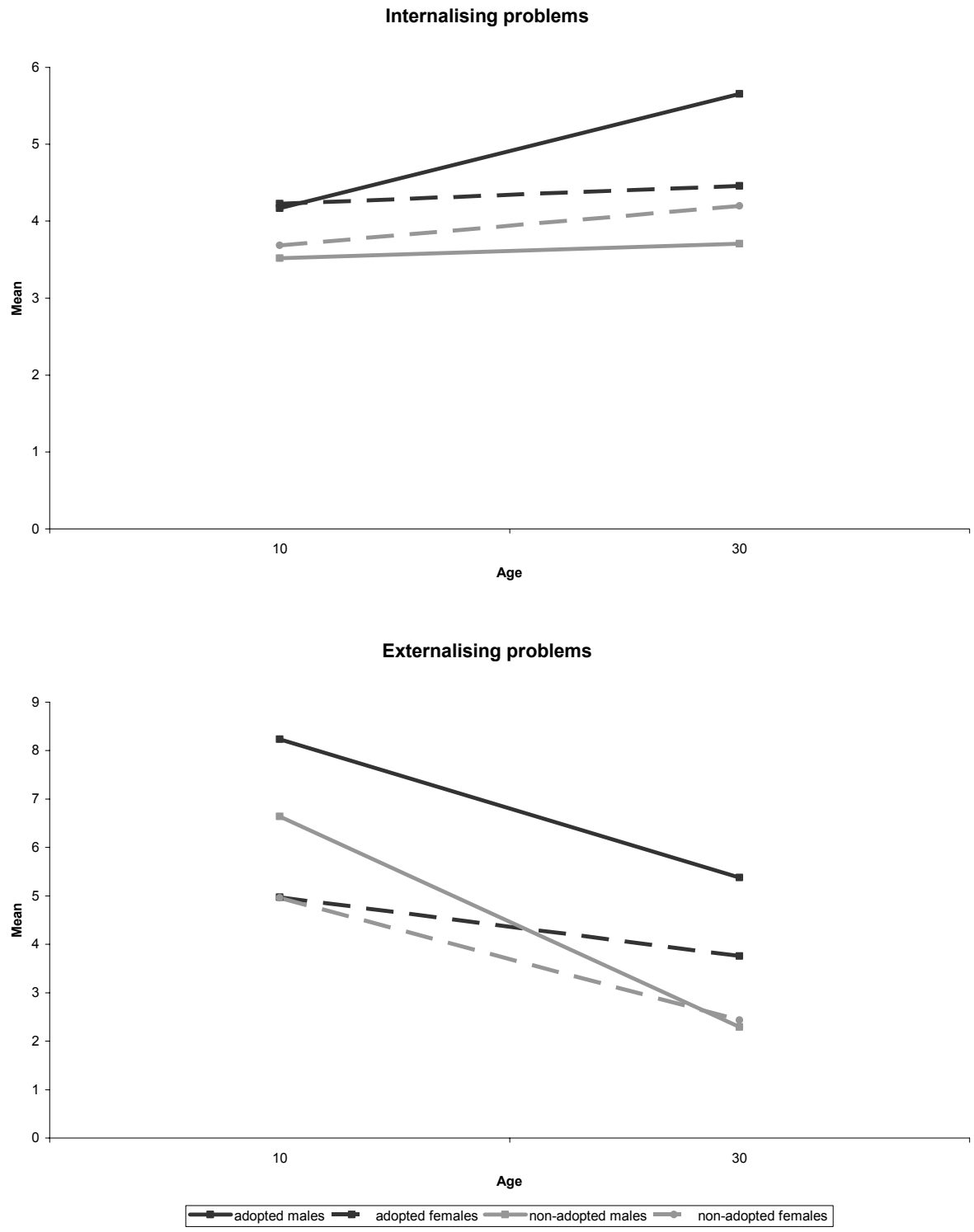

Figure 5.2 Mean Child Behavior Checklist and Young Adult Behavior Checklist scores of intercountry adoptees compared to nonadoptees from childhood into adulthood, categorized according to sex

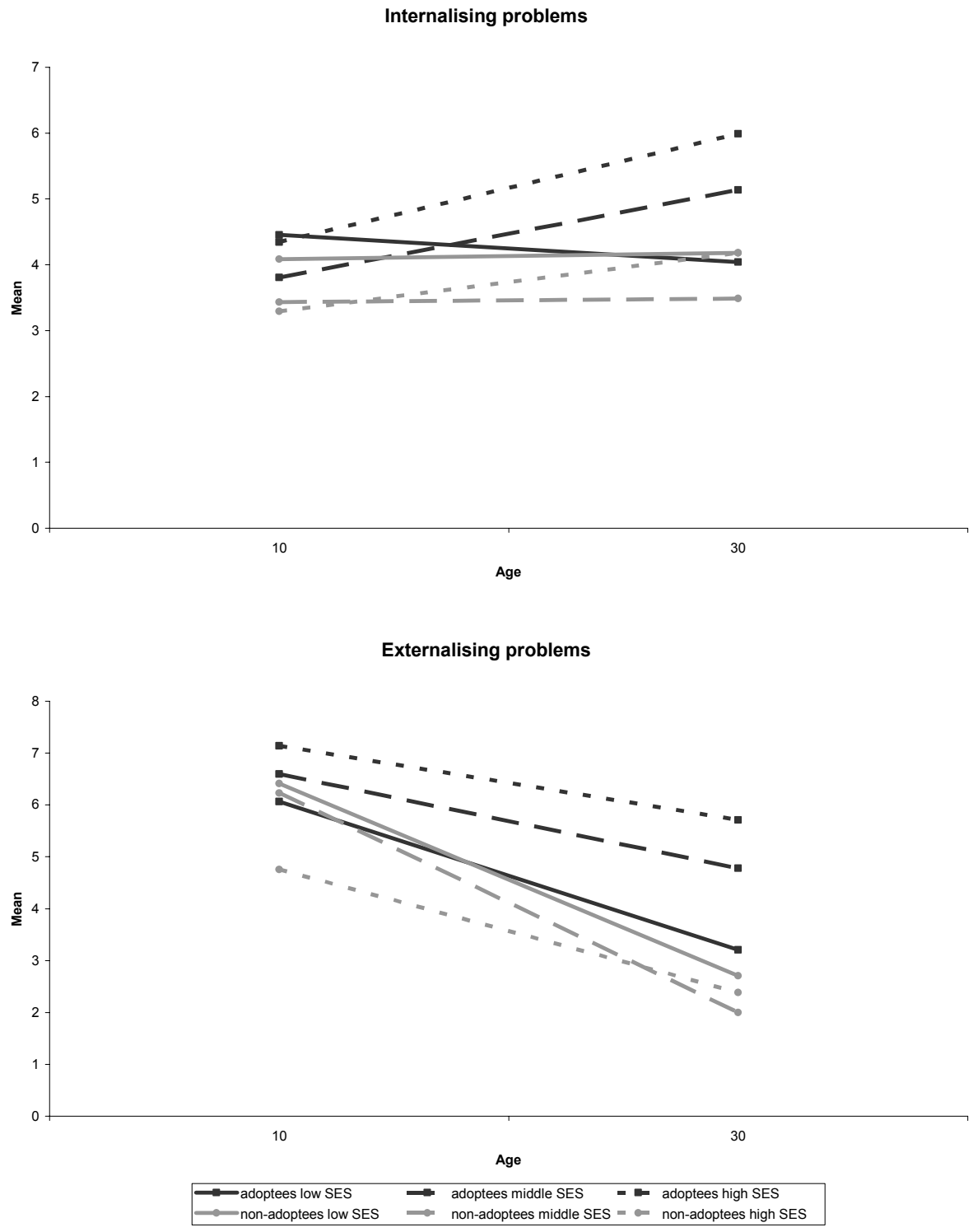

Figure 5.3 Mean Child Behavior Checklist and Young Adult Behavior Checklist scores of intercountry adoptees compared to nonadoptees from childhood into adulthood, categorized according to SES

Results

Table 5.1 and figure 5.1 show the longitudinal course of problem behaviors in adoptees. Adoptees showed an increase in internalizing problems, while internalizing problems were stable in the general population. The decrease of externalizing problems was much smaller in the adopted group than in the general population. As a result, differences in problem behaviors between adoptees and nonadoptees were larger in adulthood than in childhood.

In figure 5.2 we present results for males and females separately. Most striking is the large increase in internalizing problems in adopted males compared to a stable level of internalizing problems for nonadopted males. Furthermore, the difference in internalizing problems between adopted females and nonadopted females was not significant any more in adulthood. Adopted males have higher levels of internalizing problems in adulthood than nonadopted males and than adopted females.

For adopted males and females the decrease in externalizing problems is much smaller than for their counterparts in the general population. Adopted males have higher levels of externalizing problems in childhood and adulthood than nonadopted males, with larger differences with increasing age. While adopted females did not differ from nonadopted females in childhood with respect to externalizing behavior, in adulthood adopted females have significantly higher levels of externalizing problems than nonadopted females.

In figure 5.3 the results categorized according to SES are shown. It is striking that the level of internalizing and externalizing problems for adoptees from low SES families is similar to that for nonadoptees from low SES families, in childhood as well as in adulthood. For those from middle SES families, no differences existed in childhood between adoptees and nonadoptees, but in adulthood adoptees had much higher levels of internalizing and externalizing problems than nonadoptees. For those with high parental SES, the largest differences between adoptees and nonadoptees were found. Adoptees from high SES families had more internalizing and externalizing problems than nonadoptees from the same SES in childhood and adulthood. In general, in the general population a trend was shown that the higher the parental SES the less internalizing and externalizing problems nonadoptees had. On the contrary, for adoptees it was found that the higher the parental SES the more internalizing and externalizing problems they had.

Discussion

Developmental course of internalizing and externalizing behaviors in adoptees

This 14-year follow-up study of intercountry adoptees from ages 10 to 15 at time 1 to ages 24 to 30 at time 3, showed that differences between adoptees and nonadoptees were larger in adulthood than in childhood. Adoptees showed an increase in internalizing behaviors, whereas the course of internalizing problems was stable for nonadoptees. A smaller decrease in externalizing problems was found for adoptees compared to nonadoptees. The present study's longitudinal results confirmed those of our previously reported cross-sectional study (Tieman et al., 2005).

The smaller decrease in externalizing problems in adoptees compared to nonadoptees and consequently, the higher levels of externalizing problems for adoptees versus nonadoptees in adulthood, does not corroborate the cross-sectional results for the same sample (Tieman et al., 2005). In our cross-sectional study we found a higher level of DSM-IV diagnoses of substance abuse or dependence disorder in adoptees versus nonadoptees, but no differences were found in disruptive disorders between adoptees and nonadoptees in adulthood. It is important to note that these results are based on DSM-IV diagnoses, obtained through a structured interview with the adoptee (self-report), rather than on parent reported CBCL/YABCL problem scores. The different results of the cross-sectional and longitudinal data could be explained by the different type of data studied, dichotomous data (DSM-IV diagnoses) versus continuous data (CBCL/YABCL scores). For instance, it might be that because of the decrease in externalizing behaviors in intercountry adoptees in adulthood, the level of externalizing behaviors was not high enough to have a complete DSM-IV diagnosis for disruptive disorders. However, these continuous data revealed that differences in externalizing behaviors between adoptees and nonadoptees were still present in adulthood. Another explanation for the different results of the longitudinal study versus the cross-sectional study, might be the different informants. Parents might report more externalizing behavior than adoptees themselves.

For internalizing problems, results of this longitudinal study correspond well with the results of the cross-sectional study (Tieman et al., 2005). In our cross-sectional study, we found a higher risk for adoptees in adulthood to develop an anxiety disorder or a mood disorder than for nonadoptees. Adopted males had higher risk for having a mood disorder than nonadopted males, whereas no significant differences between adopted and nonadopted females were found. The results of the present longitudinal data show the same pattern in adulthood for internalizing problems.

Several adoption studies have examined mental health of the same adoption group at several time points in life. However, they did not use longitudinal data-analyses to study the developmental course (e.g. Bagley, 1993; Fergusson, Lynskey, & Horwood, 1995; Levy-Shiff, 2001; Lipman, Offord, Boyle, & Racine, 1993; Vroegh, 1997). Comparisons with the results of our present study are, therefore, difficult. The development of problem behaviors of intercountry adoptees over time, as such, has not often been subject of study. Besides our previous report (Verhulst & Versluis-den Bieman, 1995), to our knowledge, only Bimmel et al. (2004) had studied this developmental course, by combining longitudinal data of several measurements. Between 7 and 14 years, adopted boys were found to show a decrease in internalizing behaviors. This result is contrary to our results presented in the current study.

Longitudinal studies on intracountry adoptees have shown that adoptees had no more mental health problems than nonadoptees and that their developmental course of problem behaviors is the same as in the general population (Bohman, 1972; Kotsopoulos, Cote, Joseph, Pentland, & et al., 1988). However, comparisons between intracountry and intercountry adoptees are difficult, due to the completely different backgrounds of the adoptees. Nevertheless, this is surprising, given the results of a meta-analysis that recently showed that intercountry adoptees had fewer behavioral problems and were less often referred to mental health services than intracountry adoptees (Juffer & Van IJzendoorn, 2005).

What causes the enlarged differences?

The question arises what caused the increasing differences between adoptees and nonadoptees from childhood into adulthood. Several factors are possibly making adoptees more vulnerable for developing problems compared to nonadoptees, especially in adulthood.

First, intercountry adoptees in our sample have often experienced deprivation in the country of origin. In our previous study (Verhulst et al., 1992) early adversities were associated with higher levels of problem behavior in adolescence. These adversities, however, were not significantly related to the longitudinal increase in problems in adolescence (Verhulst & Versluis-den Bieman, 1995). Further research should be done to examine whether these preadoption influences are associated with the increase in internalizing problems and the smaller decrease in externalizing problems into adulthood.

Second, the entrance of adulthood might influence the enlarged differences between adoptees and nonadoptees. Becoming an adult make new demands on an individual. Greater independence and greater responsibilities might cause more stress for adoptees. In our cross-sectional study, less adoptees were found to have intimate relationships, to live with a partner

and to be married than nonadoptees (Tieman, Van der Ende, & Verhulst, 2006). Similar results were reported by Hjern et al. (2002). This might indicate that some adoptees experience difficulties with development tasks of adulthood, like a stable sexual relationship. This may make them more vulnerable for developing problem behaviors.

Third, it is also possible that with increasing age, and a decline of protective and supervisory influences exerted by the family as a consequence, adoptees are more exposed to racism because of their racial differences. Moreover, at the time of the third measurement (2001-2002), the intercultural climate in the Netherlands had become harder, which might exposed adoptees more to racism than in the days before. Stress caused by experienced racism may make adoptees more vulnerable for developing problem behaviors in adulthood.

Fourth, another explanation of higher levels of problem behaviors in adolescence and adulthood, might be the search of adoptees for their birth parents. This search might be a source of stress. However, in our recent study (Tieman, Van der Ende, & Verhulst, submitted) on searching for birth parents of intercountry adoptees, we showed that these higher levels of problem behaviors were already present in adoptees in childhood, before they were able to search for their birth parents. We therefore concluded that higher levels of problem behavior of searchers were not caused by the search itself. Likewise, it is unlikely that the increase in internalizing behaviors and the smaller decrease of externalizing behaviors is caused by the search for birth parents.

Sex differences

In childhood, adopted females had higher levels of internalizing, and not externalizing, behaviors than nonadopted females, whereas in adulthood they had higher levels of externalizing, and not internalizing, behaviors than nonadopted females. Adopted males had higher levels of internalizing and externalizing behaviors than nonadopted males in both childhood and adulthood. Furthermore, differences between adopted and nonadopted males are larger than between adopted and nonadopted females. Especially the high levels of internalizing behaviors in adopted males in adulthood are striking. Thus, developmental outcomes for adopted males are less positive than for adopted females.

These results are confirmed by the results of our cross-sectional analyses (Tieman et al., 2005), in which a greater likelihood for adopted males to meet the criteria for a mood disorder than for nonadopted males was found, while for females there was no significant difference between adoptees and nonadoptees in the prevalence of mood disorders. Less favourable outcomes for males are also reported by Miller et al. (2000). They found that effect

sizes, reflecting differences between adopted and nonadopted individuals, were larger for boys than for girls in regard to substance use, psychological well-being (including emotional distress), and externalizing behavior.

In the present study, males appeared to be more vulnerable to early negative life experiences or to adoption influences, resulting in behavioral problems. Further research is needed to identify factors which make adopted males more vulnerable for developing mental health problems.

SES differences

Adoptees with high parental SES had higher levels of problem behaviors in childhood as well as in adulthood compared to nonadoptees from high parental SES. These results are confirmed by the results of our cross-sectional analyses (Tieman et al., 2005), in which we showed that adoptees from high SES families had a higher risk for psychiatric disorders than nonadoptees from high SES, whereas adoptees from low and middle SES had no higher risk than their nonadopted counterparts. Higher expectations and demands of adoptive parents from high SES could cause this phenomenon. Chronic feelings of not being able to satisfy parental standards may be an important stress factor influencing the adoptees' development (Verhulst et al., 1990a) Thus, an environment associated with high parental SES does not automatically give adopted children better developmental opportunities than other environments.

Conclusions

The present longitudinal study clearly demonstrated an increase in internalizing problems and a smaller decrease of externalizing problems for adoptees compared to nonadoptees. As a result, differences in problem behaviors between adoptees and nonadoptees were larger in adulthood than in childhood. Furthermore, especially adopted males and adoptees from middle and high social economic status had the highest risks for long-term internalizing and externalizing problems.

Research Implications

- Little comparable research exists; therefore further research is needed to confirm the developmental course of problem behaviors in intercountry adoptees.
- The present study was not designed to identify factors that may explain the underlying mechanism of why adoptees' developmental course differs from that of nonadoptees.

Further research should be done to get insight in these processes.

- The developmental course of problem behaviors is found to be different for adopted males and adopted females and for adoptees with different parental SES. We therefore argue that is important that further research will distinguish between these categories.

Clinical Implications

- High levels of internalizing and externalizing behaviors of adoptees in childhood and adolescence are not transient and should therefore not be ignored.
- Disadvantages, like early negative experiences, loss of birth parents, transition from one country to another, placement in a new family and ethnic differences, might have different impacts on males versus females. Therefore, mechanisms leading to behavioral problems might be different for males versus females
- An environment associated with high parental SES does not automatically give adopted children better developmental opportunities than other environments.

Limitations

- Despite the satisfactory response rates at each measurement, for more than the half of the responders of both samples (adoption and comparison) information on one or two measurements was missing.
- The present study only used parent reported information. Especially in adulthood parents might not always be best informants.
- The effect of possible interventions on the course of problem behaviors from childhood into adulthood is unknown, because no standardized information on help-seeking and treatment was available.

6 Young adults intercountry adoptees' search for birth parents

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Chapter 6
Young adults intercountry adoptees' search for birth parents

Abstract

We examined how many adoptees from a large (N = 1417) adoption cohort were searching for birth parents and which factors were associated with this search. Whereas the majority of searchers was well-adjusted, in comparison with non-searchers without any interest in their birth parents, they had more problem behaviors, more psychiatric disorders, somewhat lower educational level, more often experienced parental divorce, more often discontinued contact with parents, more problems with dissimilarity with parents, less positive affect about adoption, were more preoccupied with adoption and had more negative experience with adoption. Scores of non-searchers with interest in their birth parents and reunited adoptees were in the middle of those of searchers and non-searchers without interest. Implications of these results are discussed.

Introduction

The search of adult adoptees for their biological roots has long been seen as an indicator for an unsuccessful adoption. Nowadays, however, the search is more and more viewed as a normative development task (Müller & Perry, 2001a; Wrobel, Grotevant, & McRoy, 2004). Another explanation which is mentioned, is that society expects adoptees to search for their birthparents (March, 1995). Besides these theoretical models, many other motives for search are mentioned by adoptees themselves: identity issues, complete autobiographical information, and medical information (Andersen, 1989; Howe, Feast, & Coster, 2000; Sachdev, 1992) .

The question how many adoptees decide to search is often raised. This question can not be easily answered. Many adoptees do not have the possibility to search (e.g. laws restricting access to records or being an abandoned child), so estimates of the number of searchers are often underrating the adoptees who would wish to search. On the other hand, research samples often include only those who are interested and willing to participate in research about adoption. This might overestimate the interest into the biological origin of adoptees. Taking these difficulties into account, investigators estimate the number of adoptees who search for their birthparents between 40 and 50 % (Müller & Perry, 2001a; Selman, 1999).

Several studies have examined factors associated with searching or not searching. In other words, why do some adoptees want to search, where as others have no such a need? Overall, women were more likely than men to search. Most searchers were between 25 and 35 years old and in most studies the SES of searchers was representative of all adoptees. While most searchers appear to be psychologically well-adjusted and have good relationships with their adoptive parents, compared to non-searchers, they have lower self-esteem, more identity problems, a more negative adoption experience, more chronic stress and a less positive relationship with their adoptive parents (for an overview see Müller & Perry (2001a)).

Most research about adoptees' search for birth parents concerned intracountry adoptees. For intercountry adoptees searching may be even more complex. Communicating with their birth parents is even more difficult due to language problems, cultural differences and a long distance. It is unknown if study results on intracountry adoptees concerning their search for birth parents do also apply to intercountry adoptees.

In most studies, samples include only those who are interested and willing to participate in research about adoption (e.g. Cubito & Obramski Brandon (2000) and Sobol & Cardiff (1983)). These samples are thus highly selected and this might give unrepresentative results. Furthermore, in research about adoptees' searching often only searchers are included in research samples (e.g. Humphrey & Humphrey (1989), Kowal & Schilling (1985), Lichtenstein (1996) and Müller, Gibbs, & Gupta Ariely (2002)), making it impossible to examine if associated factors are unique for searchers. Another limitation of recent research on adoptees' searching is the small sample size in many studies (e.g. Humphrey & Humphrey (1989), Kowal & Schilling (1985), Lichtenstein (1996), Smith & Brodzinsky (2002) and Wrobel et al., (2004)).

In the present study, to overcome these limitations, we studied a large adoption population cohort to examine the search for birth parents in young adult intercountry adoptees. We examined (1) how many adoptees were interested in their biological origin and how many were searching actively and (2) which factors were associated with young adult intercountry adoptees' search for birthparents.

Methods

Sample and procedure

The present study is part of a longitudinal study that started in 1986 in the Netherlands. The original target sample consisted of all children (n = 3,519) legally adopted by non-relatives in The Netherlands and born outside The Netherlands between January, 1 1972 and December,

31 1975. Children were selected from the central adoption register of the Dutch Ministry of Justice. Of the 3,309 parents reached, 2,148 participated in the study (64.9%). Children were aged 10-15 years. After the first measurement, the sample was approached again in 1989/1990 (time 2). For details on the initial sampling procedure, see (Verhulst et al., 1990a).

During October 1999 and April 2002, with a mean interval of 13.9 years, we sought contact to all subjects in the original sample of 2,148, except 15 who had died, 13 who had intellectual disabilities, 72 who had emigrated, 100 who had requested at previous stages to be removed from the sample, 59 who were untraceable, and 4 of whom we were uncertain that they were informed about the fact that they were adopted. Of the 1,885 approached subjects, 1,521 participated in the study, 288 refused to participate and 76 did not respond. Thus the response rate was 74.3% of the time 1 sample, corrected for adoptees who had died, who had intellectual disabilities and who had emigrated. Participants filled out a questionnaire and completed an interview.

If the participating adoptee gave permission to contact their adoptive parents, a questionnaire was sent to the parents. Of all participating adoptees 1358 (89.2%) gave this permission. The parents returned questionnaires on 1157 adoptees (85.2 %). Of 76.1 % of the adoptees participating at the third measurement, we also obtained parent information.

We have complied with APA ethical standards in this study. Informed consent was obtained from all subjects after the procedure had been fully explained.

We divided the adoptees into four groups: reunited, searchers, non-searchers with interest in their biological origin, non-searchers without interest in their biological origin. Sibling and relative search was also included in searching (see also Humphrey & Humphrey, 1989). Reunited adoptees are those who stated in the questionnaire that they had met their biological father, mother, sibling(s) (excluding those who were adopted together with a biological sibling) and/or other biological relatives. Searchers are those who answered that "yes" or "sometimes" on at least one of the following questions: (1) "I collect information about my birth parents" (2) "I make plans to meet my birth parents" and (3) "I have contact with an organization that tries to find my birth parents". Non-searchers are divided into two groups, those who have interest in their biological origin and those who have (almost) no interest in their biological origin. To be able to make this difference we computed a sum score ("yes" = 2, "sometimes" =1 and "no" = 0) on questions about interest in biological origin. The questions were: (1) "I read adoption papers to get information about my background" (2) "I am curious if I look like my birth parents" (3) "I wonder how it would be like to meet my birth parents" and (4) "I think about what I would like to ask my birth parents". The average

sum score was 3.3; we therefore decided to score all adoptees with sum score 3 or greater as "interested in biological origin" and those with sum score smaller than 3 as "not interested in biological origin".

Instruments

Psychiatric Disorders. At the third measurement, the computerized version of the Composite International Diagnostic Interview (CIDI) and three sections of the Diagnostic Interview Schedule (DIS) were used to obtain diagnoses of mental disorders in the 12 months prior to the interview (for details see Tieman et al. (2005).

Adoption Dynamics. Part of the Adoption Dynamics Questionnaire was used. It was translated in Dutch and adapted for adults (Benson, Sharma, & Roehlkepartain, 1994). Because we made some modifications, we performed reliability analysis. We used four scales: Positive affect about adoption ($\alpha = .88$; 12 items), Preoccupation with own adoption history ($\alpha = .91$; 8 items), Parental openness on adoption ($\alpha = .84$; 9 items) and Negative experience with own adoption ($\alpha = .69$; 6 items).

Family Similarity Interview (FSI). Separate items were used to assess physical, intellectual and psychological similarity to the adoptive father and mother at the third measurement (Müller et al., 2002). We asked the adoptee if he/she was similar to the adoptive parent and if he/she felt comfortable with this similarity/difference. We made six new variables on 'having a problem with dissimilarity', including those adoptees who were of the opinion that he/she was not (at all) similar to the adoptive parent (intellectually, physically or psychologically) and who felt uncomfortable with this dissimilarity. This classification was based, but not completely the same, on those used by (Müller et al., 2002).

Characteristics adoptive family. The following family characteristics, measured at the third measurement, were included in this study: presence of biological children of the adoptive parents in the family, divorce of adoptive parents, adoption motive of adoptive parents (unwanted childlessness or idealistic motives) and the presence of contact with adoptive parents in the last three months.

Early adversities. Early adversities (neglect, abuse, number of placements) were measured at the first measurement in the adoption questionnaire for adoptive parents. We included variables about early adversities only if the adoption parents were certain about their answers. For details see (Verhulst et al., 1992).

Problem behavior. The Child Behavior Checklist of the first measurement, the Youth Self-Report of the second measurement and the Young Adult Self-Report of the third measurement were also included in this study. We used the total behavior problems score and the scores for internalizing and externalizing behavior. For details see (Achenbach, 1991a, 1991b, 1997; Hofstra et al., 2000).

Social Functioning. Information about educational and professional level (7-point scale) and family status (married, relationship and biological children) was obtained at the third measurement in the questionnaire. For more details see Tieman et al. (2006).

School functioning in childhood. School functioning was assessed with questions about grade repetitions and special education on the Child Behavior Checklist (CBCL) at the first measurement (Achenbach, 1991a).

Search interest in adolescence. We also used two questions from the second measurement questionnaire about the search interest of the adopted adolescent. These questions were: "Do you want to try to find your birth parents, children's home in your country of origin?" and "Do you want to know who your birth father and/or mother is?".

Statistical analyses

First, we compared search groups on demographic variables (sex, age, parental SES and country of origin). Next, we performed ANCOVAs on all continuous outcome variables with search group, sex and parental SES (at first measurement) as factors and age as covariate. If the global test indicated a significant effect of search group, we used pair wise comparisons to examine the differences between the groups. We computed adjusted means to take differences in sex, age and parental SES between search groups into account.

For dichotomous outcome variables, we used logistic regression analyses with search group, sex, parental SES (at first measurement) and age as covariates. Odds Ratios were used

to examine the differences between the search groups. We computed adjusted percentages to take differences in sex, age and parental SES between search groups into account.

For all analyses, interactions of search group by sex were tested, because other adoption research has shown differences between males and females in search behavior and attitudes (e.g. Humphrey & Humphrey, 1989).

Table 6.1 Search behavior for adopted males and females

	Males		Females	
	N	%	N	%
Search groups				
Reunited	80	12.8	118	14.9
Searchers	102	17.6	148	18.6
Non searchers with interest	163	26.2	290	36.5
Non searchers without interest	278	44.6	238	30.0
Total	623	100	794	100

Table 6.2 Search behavior for adoptees from different countries of origin

	Non searchers without interest		Non searchers with interest		Searchers		Reunited	
	N	%	N	%	N	%	N	%
Country of origin								
Korea	187	39.1	133	27.8	77	16.1	81	16.9
Columbia	69	36.5	68	36.0	40	21.2	12	6.3
India	58	40.0	64	44.1	17	11.7	6	4.1
Indonesia	30	27.8	29	26.9	21	19.4	28	25.9
Bangladesh	36	37.1	42	43.3	19	19.6	0	0.0
Lebanon	28	40.6	28	40.6	10	14.5	3	4.3
Austria	27	42.9	12	19.0	10	15.9	14	22.2
Other European countries	15	30.0	11	22.0	13	26.0	11	22.0
Other non-European countries	66	30.3	66	30.3	43	19.7	43	19.7
Total	516	36.4	453	32.0	250	17.6	198	14.0

Results

A significant association between age and search group was found (F= 3.340, df=3, 1413, p=.019). Follow-up tests revealed that the mean age of those who were reunited (26.46) was significantly higher than of those who had no interest in searching (26.15).

In table 6.1 the distribution across search groups for males and females is given. Gender was significantly related to search group (χ^2=34.327, df=3, p<.001). The percentages of males and females who were reunited or searching were very close. However, females had much more interest in their biological origin than did males. Parental SES was not significantly related to search group (χ^2=5.899, df=6, p=.435). In table 6.2, the distribution across search group per country of origin is given. Most striking are the large differences in reunited adoptees between the countries of origin; these percentages range from 0 to 25.9%.

Table 6.3 Adjusted Means and Probabilities of Mental Health by Different Search Groups

	Non searchers without interest (A)	Non searchers with interest (B)	Searchers (C)	Reunited (D)	*F / Wald*	Significant differences between search groups
Problem Behavior in childhood - Parent report						
Internalizing	5.2	6.0	6.2	4.9	3.022*	A,D<B,C
Externalizing	6.2	7.0	7.4	6.2	1.623	
Total problems	18.5	21.0	21.7	17.6	3.279*	A,D<B,C
Problem Behavior in adolescence - Self report						
Internalizing	8.1	9.6	11.5	9.1	8.345***	A,B,D<C &A<B
Externalizing	9.9	10.4	12.8	9.0	9.779***	A,B,D<C
Total problems	29.1	32.6	39.2	29.6	11.673***	A,B,D<C & A<B
Problem Behavior in adulthood - Self report						
Internalizing	8.0	10.7	14.4	10.9	34.118***	A<B,D<C
Externalizing	6.3	7.3	9.5	6.9	16.828***	A,B,D<C & A<B
Total problems	30.4	36.9	48.6	36.1	31.078***	A<B,D<C
Psychiatric Disorders in adulthood						
Anxiety disorder	10.3 %	16.2 %	25.6 %	14.2 %	27.909***	A,B,D<C & A<B
Mood disorder	5.9 %	7.9 %	13.7 %	12.3 %	13.711**	A,B<C & A<D
Substance abuse/dependence	7.7 %	8.8 %	8.0 %	7.5 %	.516	
Disruptive disorder	2.0 %	3.0 %	4.6 %	3.3 %	2.952	
Any disorder	21.2 %	28.5 %	37.7 %	29.8 %	21.961***	A,B<C & A<B,D

* p< .05 ** p<.01 *** p < .001

Table 6.4 Adjusted Means and Probabilities of Adoption Specific Characteristics by Different Search Groups

	Non Searchers without interest (A)	Non Searchers with interest (B)	Searchers (C)	Reunited (D)	*F / Wald*	Significant differences between search groups
Adoption Dynamics						
Positive affect about adoption	50.2	47.9	43.2	45.5	30.491***	C<D<B<A
Preoccupation with adoption	12.9	22.1	26.7	14.6	303.913***	A<D<B<C
Negative experience with adoption	10.6	11.5	13.3	11.5	27.864***	A<B,D<C
Parental openness	28.4	28.9	27.0	27.4	3.756*	C,D<B & C<A
Background/ Early Adversities						
Age at placement (months)	22.7	27.2	31.2	33.4	13.882***	A<B<C,D
Neglect	0.6	0.7	0.7	0.5	.923	
Abuse	0.2	0.1	0.2	0.2	.887	
Number of placements	0.6	0.5	0.6	0.5	1.263	
Characteristics adoptive family						
Contact with adoptive parents	96.4 %	94.5 %	91.7 %	89.1 %	15.354**	C,D<A & D<B
Adoption motive parents	75.1 %	75.0 %	70.7 %	69.6 %	2.259	
Divorce adoptive parents	9.0 %	11.6 %	13.5 %	19.2 %	12.469**	A,B<D
Biological children in family	30.4 %	38.3 %	39.0 %	36.7 %	8.515*	A<B,C
Family Similarity Interview						
Intellectual - mother	4.1 %	8.8 %	12.2 %	8.0 %	14.640**	A<B,C
Intellectual - father	4.6 %	6.3 %	10.7 %	5.4 %	9.755*	A<C
Psychological - mother	2.3 %	7.5 %	13.6 %	9.3 %	27.905***	A<B,C,D & B<C
Psychological - father	3.3 %	3.9 %	12.3 %	8.1 %	24.697***	A,B<C,D
Physical - mother	1.3 %	2.5 %	4.8 %	3.0 %	6.845	
Physical - father	2.9 %	2.1 %	3.1 %	2.6 %	1.003	
Search interest in adolescence						
Search birthparents / children's home	29.3 %	52.8 %	64.4 %	62.5 %	70.039***	A<B,C,D & B<C
Get to know birthparents	28.3 %	54.2 %	68.3 %	55.8 %	72.671***	A<B,C,D & B<C

* p< .05 ** p<.01 *** p < .001

Table 6.5 Adjusted Means and Probabilities for Social Functioning by Different Search Groups

	Non Searchers without interest (A)	Non Searchers with interest (B)	Searchers (C)	Reunited (D)	*F / Wald*	Significant differences between search groups
School functioning in childhood						
Grade repetitions	20.7 %	22.9 %	22.5 %	20.9 %	.831	
Special education	7.9 %	8.9 %	12.6 %	9.3 %	4.172	
Educational and Professional level in adulthood						
Educational level	4.1	4.1	3.9	4.1	3.020*	C<A,B,D
Professional level	3.1	3.020	2.923	3.020	1.909	
Family status in adulthood						
Married	17.6 %	14.1 %	13.6 %	15.2 %	3.366	
Relationship (> 1 year)	53.8 %	53.7 %	51.1 %	51.8 %	.742	
Biological Child(ren)	12.6 %	14.3 %	14.9 %	13.0 %	1.095	

* p< .05 ** p<.01 *** p < .001

In tables 6.3 and 6.4 we examined several factors possibly associated with search group. Many factors were found to be related to the search group of the adoptees. Although for each factor the differences between the groups were somewhat different, the overall pattern was that searchers had most behavioral problems, psychiatric disorders, less positive attitude towards adoption, were older at placement, had more problems with dissimilarity with adoption parents, had lower educational level and were more interested in searching in adolescence. Non-searchers without any interest in their origin differed sharply from the searchers on nearly all factors.

The following sex by search group interactions, which we tested for all factors, were found to be significant:

- In all search groups more women had an anxiety disorder than men, except for those who were reunited. Of the reunited adoptees 15.8% had an anxiety disorder, males just as often as females. So female reunited adoptees were less likely to have an anxiety disorder than female searchers (34.3%) and just as likely as female non-searchers without interest (16.7%), whereas male reunited adoptees were just as likely as male searchers (16.8%) and much more likely than male non-searchers without interest (4.5%).
- For those who are reunited with their biological family, males had higher positive affect about adoption than females; for other search group no differences between males and females were observed.
- For the presence of biological children in the family, the largest difference between women and men was seen by those who are reunited; of the reunited women 54.2% had a biological sibling whereas for the reunited men this was only 36.3%. Reunited women were more likely to have a biological child in the family than women of all other search groups, whereas reunited men were less likely than men of all other search groups.
- Reunited females were on average 39.5 months old at the time of placement in the adoption home, whereas reunited males were only on average 24.7 months old. For all other search groups no differences between males and females were found.
- For abuse, it was striking that male searchers experienced the most abuse of all groups, whereas female searchers experienced the least.

Discussion

Our results indicated that 31.6 % of our sample searched or had searched for their birth parents. Searchers had more problem behavior in adolescence, more psychiatric disorders in adulthood, somewhat lower educational level in adulthood, more often divorced adoptive parents, more often a break down of contact with adoptive parents, more often a sibling who is a biological child of the adoptive parents, more often a problem with dissimilarity with adoptive parents, were older at placement, had less positive affect about adoption, had more negative experiences with adoption, were more preoccupied with the adoption, experienced less parental openness about adoption and had already in childhood more interest in their origin than non-searchers without interest.

Number of adoptees searching for birth parents

The proportion of adoptees searching for birth parents in our sample (31.6 %) was somewhat lower than estimates made by (Müller & Perry, 2001a; Selman, 1999), which ranged from 40 to 50 %. However, a substantial number of adoptees (32.0%) was not actually searching, but was interested in their roots. Differences between searching possibilities for intracountry and intercountry adoptees may explain the lower search numbers.

So far, only few studies have examined search behavior of intercountry adoptees (e.g.Irhammar & Cederblad, 2000). As far as we know none of them have compared search behavior for adoptees from different countries of origin. Our results showed that the percentages of reunited adoptees showed large differences across the various countries of origin. This might reflect variations in the possibilities adoptees have to find their birth parents. For example, none of the adoptees from Bangladesh were successful in finding their birth parents. At the same time, a large proportion of adoptees from Bangladesh indicated that they were certain their birth mother (20,6%) and/or father (34,0%) had died. Our findings stress the importance of taking factors influencing the possibility to find birth parents into account when investigating factors associated with searching for birth parents in international adoptees. The fact that adoptees do not search for their birth parents does not automatically mean that they do not have the wish to do so. It may also indicate that the possibilities they have for a successful reunion with their birth parents are restricted for various reasons.

Sex differences in search numbers were investigated in several studies. In many studies, females were more likely to search for their birth parents than males (for an overview see (Müller & Perry, 2001a)). Some researchers, however, argued that this difference was due to an overrepresentation of females, caused be a greater willingness of females to participate,

in the studies (Sobol & Cardiff, 1983). In our study, we found that females were more interested in searching for their birth parents. However, females in our study were not more likely than males to actually search for their birth parents. Our findings are consistent with results of Irhammer & Cederblad (2000), who found that although females seemed to have a greater interest in their biological family as expressed by an inner search (thoughts about their biological family), there were no statistical differences between females and males in respective of an outer search (a more active search for information about the biological family).

Several explanations for the greater interest in females versus males to search for their birth parents were given by Muller and Perry (Müller & Perry, 2001a).First, females' experience of pregnancy and child birth may intensify females' desire to search by heightening their awareness of the continuity of life through the generations, by activating thoughts about their own births and birth mothers, and by making salient the importance of knowing about their medical histories and problems. Second, different socialization processes for males and females may result in males being more likely to define themselves in terms of their occupation and females being more likely to define themselves in terms of social relationships.

Problem behavior in relation to searching for birth parents

In the present study, we used several measures and several informants to assess problem behavior. Despite variations in methodology to assess problems, all results were in the same direction, indicating that searchers had more problems, and more searchers met criteria for psychiatric disorders than adoptees from other search groups. Those adoptees who did not search for their birth parents and who were without interest to do so had the lowest level of problems. Similar results were reported by Cubito & Obramski Brandon (2000), whereas Wrobel et al. (2004) did not find an association between the level of problems and the intention to search and Levy-Shiff (2001) did not find an association between the level of problems and being reunited with birth parents. In our study, associations between internalizing problems and searching for birth parents were more consistent than for externalizing problems.

It was striking that already in childhood, before their search, prospective searchers, had higher levels of problem behavior than prospective non-searchers without interest in searching for birth parents. Therefore, the search for birth parents itself cannot be the only cause for the higher levels of problems in adoptees who are searching. Similarly, already in

childhood, reunited adoptees showed lower levels of problem behavior than searchers. This finding indicates that reunited adoptees cannot have been "cured" by finding their birth parents, because they belonged to the better functioning group already in childhood. Adoptees that succeed in their search might have different characteristics many years prior to their attempts to find their birth parents. In a study of Smith & Brodzinsky (2002) it was found that the more curious adoptees were about their birth parents the more they used problem solving coping (e.g. making a plan to solve the problem; thinking about the problem in a new way). It might be interesting to examine if reunited adoptees have other coping strategies than searchers or non-searchers from childhood on.

Inner need and external factors

Sachdev (1992) had found that the older the adoptees the more interested they become in their birth parents. In our study, interest in their biological origin of most searching adoptees already existed in adolescence; reversely most non-searchers without interest had no interest in searching in adolescence. Interest in biological origin thus is very stable over time. It might be an inner need which is present in an adoptee or not.

However, several factors which we examined were found to influence the tendency to search for birth parents. First, divorce of the adoptive parents had a strong relationship with searching. Reunited adoptees had much more often divorced adoptive parents than non-searchers. This finding is consistent with findings of Irhammer & Cederblad (2000). It is quite unlikely that the adoptive parents divorced due to problems with the search of their adoptive child. Thus, it might be that the experience of divorce of adoptive parents raised questions about their birth parents. It is also possible that the divorce negatively influenced the contact with (one of) the adoptive parents, which might have enlarged the need for contacting birth parents.

Second, although the majority of adoptees had recently contacted their adoptive parents, less searchers and reunited adoptees had contact with adoptive parents than non-searchers. There are a number of possible explanations. Adoptees who searched or were reunited may be more independent which is reflected both in their tendency to be actively involved in their roots and in seeking less contact with their adoptive parents. It is also possible that contact with the adoptive parents was decreased because the search of the adoptee strained the relationship with the adoptive parents or that the search of the adoptee was initiated because of lack of contact with adoptive parents. Parental openness about adoption in the Netherlands is high in comparison with some other countries (e.g. Israel

(Lichtenstein, 1996)); this may make the second explanation less likely. Sobol & Cardiff (1983) found that the more negatively the relationship with adoptive parents was evaluated, the greater the degree of searching. After detailed examination of their data, they concluded that there exist two subgroups of searchers; one for whom searching is unrelated to the atmosphere of the home, and one for whom searching is an attempt to meet needs unfulfilled in the adopted family relationship.

Third, the presence of biological children of the adoptive parents in the family had a small influence. More adoptees who tended to searching had a biological child of their parents as sibling than those who had no interest in searching. The presence of biological children of the adoptive parents may have increased the awareness of differences between biological children and adoptive children in the family, which in turn may have made adoptive children more curious about their birth parents. This hypothesis is supported by the results of the Family Similarity Interview. More searchers had problems with their dissimilarity with their adoptive parents than those who were not interested in searching. Surprisingly, the physical difference was not important, but the intellectual and psychological differences were. Apparently, the physical difference between intercountry adoptees and their adoptive parents is so obvious that adoptees do not have problems with it. The lack of psychological or intellectual similarity with their parents might be harder to accept and might raise more difficulties in family functioning.

Fourth, age at placement was associated with searching. The older the adoptees were at placement, the more interest in searching they had, in our study. This is contrary to other research, in which searchers were more likely to have been placed earlier in adoptive families than non-searchers (Aumend & Barrett, 1984; Smith & Brodzinsky, 2002; Sobol & Cardiff, 1983). It remains unclear what causes the different association in our study compared to other studies. However, we hypothesize that adoptees who were older at placement had more memories from before their adoption and might therefore be more curious about their roots. .

Conclusions and Implications

Is searching necessary for adoptees or should searching be dissuaded? Several studies (Howe & Feast, 2001; Howe et al., 2000; Müller & Perry, 2001b) have shown that after the search, the long-term outcomes of the reunion differ enormously between adoptees (e.g. close relationship with birth parents or break down of contact directly after the reunion). However,

these studies have also indicated that whatever the outcome, adoptees are almost always satisfied with their search. The contact with birth parents satisfied adoptees' need for information and, to a lesser extent, their need for emotional support from their birth parents. The majority of the adoptees felt that the contact with their birth parents had a positive effect on their self-concept, self-esteem and their relationships with others (Howe & Feast, 2001; Howe et al., 2000; Müller & Perry, 2001b). Combining these results with results of the present study, we can neither urge nor dissuade adoptees to search. If an adoptee feels the desire to search and has the opportunity to do so, it might be important to search. After all, we showed, with longitudinal data, that the higher levels of problem behavior of searchers were not caused by the search itself. Whatever the outcome of the search (e.g. close contact with birth parents or being unable to find birth parents), the experience might be worthwhile for the adoptee (Müller & Perry, 2001b). However, if adoptees do not have the desire to search for birth parents, and this is quite a large group of adoptees, they should not be forced. Non-searchers were after all well adjusted.

An important conclusion of this study is that the classification into search groups is crucial for the interpretation of the results. A division into non-searchers (with or without interest) versus searchers (including reunited adoptees) is not sensitive enough to reveal differences. After all, non-searchers without interest differed from non-searchers with interest and searchers differed from reunited adoptees. Combining these groups would have masked differences between searchers and non-searchers. We therefore argue that it is important for further research to base research about searching for birth parents on different subgroups of searchers and non-searchers. Because it is important to include factors hampering the possibility to reach the birth parents, such as death of the parents, it is advised to include a category "would want to search, but is not able to" in future research.

In summary, almost one third of the intercountry adoptees in our sample searched for or had been reunited with their birth parents. Of those not searching for birth parents, half was interested in their biological family. Many factors associated with searching for birth parents, like mental health, social functioning, early adversities and characteristics of the adoptive family, were examined. Our longitudinal data revealed that higher levels of problem behavior of searchers were not caused by the search itself and those who were reunited were not "cured" by the search either. It is assumed that adoptees that succeed in their search might have different characteristics many years prior to their attempts to find their birth parents.

In general, searching could be seen as an inner need for some adoptees. Their interest in their origin was already present in adolescence. Nevertheless, some external factors (e.g. divorce parents or a sibling which is a biological child of the adoptive parents) may influence the desire to search. Searching for birth parents in adoptees might be an inner need which could be influenced by external factors.

7 General discussion

Chapter 7
General discussion

In this thesis, the third measurement of the Sophia Longitudinal Adoption Study is described. We examined the mental health of a sample of 1,521 intercountry adoptees in young adulthood. Moreover specifically, we investigated: (1) the current mental health, including psychiatric disorders and social functioning, of young adult intercountry adoptees aged 24 to 30 years, compare to that of young adults from the general population, (2) the longitudinal course of mental health in intercountry adoptees over a 14-year period from ages 10 to 30 years, (3) the role of age, sex and SES on mental health in young adult intercountry adoptees and (4) the prevalence of searching for birth parents in young adult intercountry adoptees and to determine factors associated with this search.

Present functioning of young adult intercountry adoptees

The first aim of this thesis was to compare the current mental health of young adult intercountry adoptees with that of young adults from the general population. We therefore first, in chapter 2, examined the prevalence of psychiatric disorders in young adult intercountry adoptees and in nonadopted young adults. Young adult intercountry adoptees were one and a half to nearly four times as likely to have a psychiatric disorder, especially anxiety and mood disorders and substance abuse and dependence, as are nonadoptees of the same age. For disruptive disorders, no difference in likelihood between adoptees and nonadoptees was found. The risk for psychiatric disorders in adoptees varied by sex, SES, and age.

Second, in chapter 3, we compared the social functioning of the intercountry adoptees with that of same-aged nonadoptees. Intimate relationships, living with a partner and marriage were less frequent among adoptees compared to nonadoptees. In contrast with these last findings, adoptees were not more impaired in their social contacts than nonadoptees. Educational and professional attainment of the adoptees was the same as that of nonadoptees in the general population. Our results also indicated that in most areas of social functioning in daily life, like in education, profession, household and leisure time, young adult intercountry adoptees function as good as nonadoptees of the same age.

In conclusion, despite the high risk of psychiatric disorders in young adult intercountry adoptees, their daily social functioning and attainment is on par with that of the general population. These findings suggest that young adult intercountry adoptees cope adequately with their psychiatric problems in daily life.

Longitudinal developments in behavioral problems

Data from three assessments were available for investigating the longitudinal course of emotional and behavioral problems over a 14-year period. At time of the first measurement, the adoptees were aged 10 to 15 years. At the third measurement, the age ranged from 24 to 30 years.

The longitudinal analyses in chapter 5 showed that differences regarding emotional and behavioral problems between adoptees and nonadoptees were larger in adulthood than in childhood. This was caused by different development of problem behaviors for adoptees and nonadoptees. From childhood into adulthood, adoptees showed a significant increase in internalizing behaviors, compared to a stable level in the general population. For externalizing behaviors, adoptees showed a smaller decrease in externalizing behaviors than nonadoptees. Furthermore, especially adopted males and adoptees from middle and high social economic status were found to be at higher risk for more problematic developmental courses.

In conclusion, the longitudinal results showed that high levels of behavioral problems of intercountry adoptees in comparison with nonadoptees do not diminish from childhood into adulthood. Moreover, differences between adoptees and nonadoptees became larger in adulthood than in childhood. This implies that assessment and treatment of mental health problems at young age might be desirable in intercountry adoptees.

Searching for birth parents

Another aim of the present study was to determine the prevalence of searching for birth parents in young adult intercountry adoptees and to determine factors associated with this search. In chapter 6, we therefore examined how many adoptees were searching for birth parents and which factors were associated with this search. Of all adoptees, 14% was reunited with biological family, 18 % was searching for birth parents, 32 % was not searching but did show interest in their biological parents and 36% showed no interest in searching at all.

Whereas the majority of searchers was well-adjusted, in comparison with non-searchers without any interest in their birth parents, they had more problem behavior in adolescence and more psychiatric disorders in adulthood. These higher levels of problem

behavior of searchers were not caused by the search itself, because already in childhood, before their search, prospective searchers had higher levels of problem behaviors than prospective non-searchers without interest. Similarly, although reunited adoptees had lower levels of problem behaviors than nonadoptees they were not "cured" by the search either, because they belonged to the better functioning group already in childhood, before their search. It is assumed that adoptees that succeed in their search might have different characteristics many years prior to their attempts to find their birth parents.

Already in childhood searchers had more interest in their origin than non-searchers without interest. The desire to search for birth parents seems to be rather stable in time. Therefore, searching could be seen as an inner need for some adoptees. However, several external factors were found to influence the tendency to search. In comparison with non-searchers without any interest in their birth parents, searchers had more often divorced adoptive parents, more often a break down of contact with adoptive parents, more often a sibling who is a biological child of the adoptive parents, more often a problem with dissimilarity with adoptive parents and were older at placement.

Sex differences

We aimed to determine sex differences in the present functioning of young adult intercountry adoptees. Overall, adopted males showed less favorable results than adopted females as compared with young adults from the general population. This sex difference was found for several outcomes in adulthood, which will be discussed here.

First, in chapter 2, we showed that adopted males were much more likely to meet the criteria for a mood disorder than nonadopted males, while for females there was no significant difference between adoptees and nonadoptees in the prevalence of mood disorders. A similar, non-significant, trend was found for anxiety disorders. Likewise, our longitudinal analyses in chapter 5 showed that adopted males have higher levels of internalizing problems in adulthood than nonadopted males.

Second, our longitudinal analyses further showed that both males and females had higher levels of problem behaviors from childhood into adulthood than nonadoptees. However, differences between adopted males and nonadopted males were larger than between adopted females and nonadopted females. Adopted females had similar levels of externalizing behavior in childhood and of internalizing behavior in adulthood as nonadopted females, whereas adopted males had higher levels of both externalizing and internalizing behaviors over time.

Third, regarding educational attainment (chapter 3), it was found that adopted males were more likely to have low education than nonadopted males, while adopted females did not differ from nonadopted females.

In summary, outcomes in adulthood seem to be better for adopted females than for adopted males. This suggests that males more than females show vulnerability to early negative life experiences, to adoption as such, or to influences such as discrimination resulting in less positive adjustment. We do not know yet what causes this greater vulnerability of males. Further research is needed to identify factors which make adopted males more vulnerable for developing mental health problems. However, it seems important that we realize that similar disadvantages, like early negative experiences, loss of birth parents, transition from one country to another, placement in a new family and ethnic differences, might have different outcomes for males versus females. Therefore, mechanisms leading to behavioral problems might be different for males versus females.

SES differences

Adoption studies give special opportunities to study the role of SES on mental health. First, in an adoption sample the children are not biologically related to their parents, thus one can evaluate the non-genetic aspect of a social risk indicator such as parental SES. Second, the SES of adoptive parents is on average much higher than of nonadoptive parents. It is widely assumed that this might benefit the development of the child (Juffer & van IJzendoorn, 2005). We aimed to examine whether this assumption is correct.

In general, the role of SES on the mental health was found to be different for young adult intercountry adoptees compared to nonadoptees of the same age. Our cross-sectional results in chapter 2 showed that adoptees with high parental SES were more at risk for later psychiatric disorder than were nonadoptees who had parents with high SES, whereas adoptees with low or middle parental SES did not differ from their counterparts in the general population. For adoptees, the probability of having a psychiatric disorder increased with higher SES, while in the general population the probability decreased.

In addition, almost the same results were found with our longitudinal analyses in chapter 5 on behavioral problems from childhood into adulthood. Adoptees with low parental SES were found not to differ from nonadoptees with low parental SES with respect to behavioral problems in childhood and adulthood. Adoptees with middle parental SES did not differ in childhood, but had higher levels of externalizing and internalizing problems in adulthood compared to nonadoptees with middle parental SES. Adoptees with high parental

SES had higher levels of problem behaviors in childhood as well as in adulthood compared to nonadoptees from high parental SES.

For educational and professional achievement (chapter 4), no association with parental SES was found for young adult intercountry adoptees. For nonadoptees, as expected, a strong relationship between parental SES and educational and professional attainment was found. The probability of high educational and professional level increased with higher parental SES for nonadoptees. As a result, adoptees from low parental SES had higher educational levels compared to nonadoptees from low parental SES, whereas adoptees from high parental SES had lower educational levels than nonadoptees from high parental SES.

Two important conclusions can be drawn from these results. First, the absence of an association between parental SES and educational and professional achievement in the adoption group, indicates that this relationship in the general population might largely reflect genetic kinship. Second, the higher prevalence of psychiatric disorders among adoptees with higher parental SES compared to those with low or middle SES indicates that an environment with high parental SES does not automatically give adoptees better developmental opportunities.

Strengths and limitations

The present study is unique in several ways. We studied a complete cohort of adoptees born between 1972 and 1975; resulting in a large sample size. We used standardized diagnostic procedures and methods and had data on outcomes in several areas of life. Furthermore, we made comparisons with the general population. Since this study concerned the third measurement of the same sample, longitudinal data were available. Overall, this study provided information on mental health in young adult intercountry adoptees, about which little was known so far.

Besides these strengths, the study has some limitations which must be kept in mind by interpreting and generalizing the results of this thesis. First, the selective attrition in the sample is the main limitation of this study. The dropouts had relatively high levels of parent-reported problems at the first measurement, whereas the responders had relatively low levels. Consequently, it might be that our results in this thesis are an under representation of mental health problems in young adult intercountry adoptees.

Second, since the 1970s, several changes in adoption practice and post adoption care have taken place. In the 1970s intercountry adoption was a new phenomenon. Adoptive parents were often ill prepared for the problems they would encounter. Furthermore, little

support was available for adoptees and adoptive parents. Nowadays, in some countries (e.g., Norway and the Netherlands) parents are informed about the increased risks of mental health problems, in addition to other aspects of adoption, in a preparatory course. Sometimes special counseling after the child's arrival is available. Some evidence exist that better preparation of adoptive parents and greater support for adoptees and their families who are in need of help have a positive influence on the development of children who are currently being adopted (Stams, Juffer, Van IJzendoorn, & Hoksbergen, 2001).

Third, in the 1970s many adoptive parents adopted a child for idealistic motives. In our sample, around 40 % of the adoptive parents had this motive. At present, this only accounts for 5 to 10 % of the adoptions in the Netherlands (Hoksbergen, 2002). Parents with idealistic motives often had already biological children in the family, whereas families who adopted because of unwanted childlessness in most cases do not have biological children. Although we did not study the effect of adoptive motives and the presence of biological children in the family in this thesis, little evidence exists that this might affect the adjustment of adoptees (Geerars, 't Hart, & Hoksbergen, 1991; Schneider, 1995).

Fourth, it must be stressed that our sample is very heterogeneous. Adoptees came from many different countries of origin and age at placement ranged from a few days up to ten years old. As we have shown, in chapter 6, this might affect the results. Countries of origin may differ on several aspects, like the quality of care for the children in nursery homes or foster families, the socioeconomic situation and the situations in which parents gave up their child for adoption. Over the last decades, the countries of origin of children adopted in the Netherlands have varied (Ministerie van Justitie, 1993, 2005), therefore the results of the present study are limited in generalizability to children adopted today.

Fifth, it must be stressed that comparing intercountry adoptees with the general population is, in a way, an unequal comparison, because they have not experienced the same early adversities and the loss of their birth parents. It might be better to compare adoptees with children that remain in an orphanage or who return to their biological parents. Research in this area showed that adopted children have achieved higher educational level than children remaining in an orphanage. Therefore, it might be that adoption benefits the developmental opportunities for a child who has been abandoned (Van IJzendoorn et al., 2005).

Implications

Overall, the majority of young adult intercountry adoptees had no serious mental health problems. However, a relatively large minority was at risk for developing psychiatric disorders, and behavioral problems of adoptees were found to increase into adulthood. Furthermore, risks varied by sex and SES. These insights can be applied to meet the needs of intercountry adoptees more adequately. Therefore the following implications are given:

- Adoptive parents and prospective adoptive parents of adopted children, as well as clinicians and policy makers, should be aware of the fact that intercountry adoptees have greater risk of developing serious long-term mental health problems than individuals of the same age from the general population.
- High levels of internalizing and externalizing behaviors of adoptees in childhood and adolescence are not transient. Differences between adoptees and nonadoptees increased from childhood into adulthood. This implies that assessment and treatment of mental health problems in intercountry adoptees at young age is desirable.
- Effects of early recognition and adequate interventions for mental health problems in intercountry adoptees need to be investigated.
- Disadvantages, such as early negative experiences, loss of birth parents, transition from one country to another, placement in a new family and ethnic differences, have different impact on males and females. Therefore, mechanisms leading to behavioral problems might be different for males and females
- An environment associated with high parental SES does not automatically give adopted children better developmental opportunities than other environments.

Conclusion

We conclude that young adult intercountry adoptees are at risk for developing mental health problems. The higher prevalence of psychiatric disorders in adulthood and, the increase in problem behaviors from childhood into adulthood are alarming. However, it should be stressed that the majority did not have psychiatric disorders, despite of the adverse circumstances in the first part of their lives. Furthermore, adoptees were found to function in daily life as good as, and to have achieved the same educational and professional level as nonadoptees. For children who did not have a permanent and satisfactory home in their country of origin, intercountry adoption might therefore be a good alternative.

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Summary

Summary

The objective of the present study was to extend the knowledge on the development of intercountry adoptees, by examining outcomes in adulthood. In **chapter 1**, the background and the main aims of the current study were presented. Nowadays, the first generation of intercountry adoptees has entered adulthood. So far, little is known about the development of intercountry adoptees in adulthood. In the present longitudinal study, we studied various developmental outcomes in 1,521 young adult intercountry adoptees. The main aims of the study were: (1) to compare the current mental health, including psychiatric disorders and social functioning, of young adult intercountry adoptees aged 24 to 30 years, with that of young adults from the general population, (2) to determine the longitudinal course of mental health in intercountry adoptees over a 14-year period from ages 10 to 30 years, (3) to determine the role of age, sex and SES on mental health in young adult intercountry adoptees, (4) to determine the prevalence of searching for birth parents in young adult intercountry adoptees and to determine factors associated with search.

In **chapter 2**, we compared the prevalences of psychiatric disorders in young adult intercountry adoptees with that of nonadopted young adults from the general population. Adoptees were more likely to meet the criteria for anxiety disorder and for substance abuse and dependence than non-adoptees. Adopted males were more likely to have an mood disorder than non-adopted males, while adopted females did not differ significantly from non-adopted females. Adoptees with low and middle parental SES did not differ from the comparison subjects, while adoptees with high parental SES were more likely to have a psychiatric disorder than nonadoptees with high parental SES. In conclusion, intercountry adoptees run a higher risk of having severe mental health problems in adulthood than nonadoptees of the same age.

In **chapter 3**, information was provided on different aspects of social functioning in young adult intercountry adoptees compared to nonadoptees. A wide range of biographical characteristics, concerning marital status, living conditions, offspring, educational and professional level, was examined. Furthermore, social functioning in different areas of daily life were investigated. Adoptees were less likely to have intimate relationships, to live with a partner and to be married than nonadoptees. Educational and professional attainment of adoptees was on par with that of the general population. In most areas of social functioning in daily life, like in education, profession, social contacts, household and leisure time, adoptees function the same as nonadoptees. Adopted males showed somewhat less favorable results than adopted females. So, the daily social functioning and attainment of young adult

intercountry adoptees is on par with that of nonadoptees, despite their high risk of psychiatric disorders.

In **chapter 4,** we studied the relationship between parental SES and children's educational attainment in an adoption and a general population cohort. In adoptees, no relationship between parental SES and educational attainment was found, whereas in the general population children, biologically related to their parents, with high parental SES were much more likely to have achieved high educational levels than those with low parental SES. This indicates that genetic kinship underlies the relationship between parental SES and educational achievement. Furthermore, these results show that the school system in the Netherlands is egalitarian: the educational chances of children do not depend on parents' SES.

In **chapter 5**, we explored the 14-year course of internalizing and externalizing problem behaviors in intercountry adoptees to nonadoptees. Data of three measurements showed that internalizing problems in adoptees increased from childhood into adulthood, while these remained stable in the general population. Externalizing problems in adoptees decreased from childhood into adulthood, but this decrease was smaller than the decrease in the general population. Most problematic courses were found for adopted males and adoptees from middle and high parental SES. These results showed that intercountry adoptees have higher levels of problem behavior in childhood as well as in adulthood compared to nonadoptees. Over time, differences in problem behaviors between adoptees and nonadoptees increased.

In **chapter 6**, we examined the prevalence of searching for birth parents in intercountry adoptees and which factors were associated with this search. Almost one third of the intercountry adoptees in our sample searched for or had been reunited with their birth parents. Of those not searching, half was interested in their birth parents. Whereas the majority of searchers was well-adjusted, in comparison with non-searchers without interest in their birth-parents, they had more problem behavior in adolescence and more psychiatric disorders in adulthood. However, these problems could not been as caused by the search itself. Those who were searching for their birth parents had, already in childhood, more interest in their origins. The desire to search seems to be rather stable over time. However, several external factors, like divorce adoptive parents, break down of contact with adoptive parents and a sibling who is the biological child of the adoptive parents, were found to influence the tendency to search.

In **chapter 7**, the main findings and conclusions of this thesis were summarized and discussed. The present study showed that young adult intercountry adoptees are at risk for developing mental health problems. Especially adopted males and adoptees with high parental SES showed less favorable outcomes. However, it should be stressed that the majority did not have psychiatric disorders and the social functioning of adoptees was on par with that of nonadoptees. Several limitations of the study and implications following from these results were described.

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Samenvatting

Samenvatting

Het doel van de huidige studie was om kennis over de ontwikkeling van interlandelijk geadopteerden uit te breiden, door uitkomsten in de volwassenheid te bestuderen. In **hoofdstuk 1**, werden de achtergrond en de belangrijkste doelstellingen van het onderzoek gepresenteerd. De eerste generatie interlandelijk geadopteerden is inmiddels volwassen geworden. Tot nu toe is er weinig bekend over de ontwikkeling van interlandelijk geadopteerden in de volwassenheid. In het huidige longitudinale onderzoek bestudeerden we verschillende ontwikkelingsuitkomsten van 1521 jong volwassen interlandelijk geadopteerden. De belangrijkste doelstellingen van dit onderzoek waren: (1) het vergelijken van de huidige psychische gezondheid, inclusief psychiatrische stoornissen en sociaal functioneren, van jong volwassen interlandelijk geadopteerden tussen de 24 en 30 jaar oud, met die van jong volwassenen uit de algemene bevolking, (2) het bepalen van het longitudinale verloop van psychische gezondheid in interlandelijk geadopteerden over een 14-jarige periode van 10 tot 30 jaar oud, (3) het bepalen van de rol van leeftijd, sekse en SES bij psychische gezondheid in jong volwassen interlandelijk geadopteerden, (4) het bepalen van de prevalentie van zoeken naar biologische ouders bij jong volwassen interlandelijk geadopteerden en het bepalen van factoren die geassocieerd zijn met deze zoektocht.

In **hoofdstuk 2**, werden de prevalenties van psychiatrische stoornissen van jong volwassen interlandelijk geadopteerden vergeleken met die van jong volwassenen uit de algemene bevolking. Geadopteerden voldeden vaker aan de criteria voor een angststoornis en voor middelenmisbruik en -afhankelijkheid dan niet-geadopteerden. Geadopteerden mannen voldeden vaker aan de criteria voor een stemmingsstoornis dan niet-geadopteerde mannen, terwijl geadopteerden vrouwen niet significant verschilden van niet-geadopteerde vrouwen. Geadopteerden met een laag of midden ouderlijk SES bleken niet te verschillen van de vergelijkingsgroepen, terwijl geadopteerden met een hoog ouderlijk SES vaker voldeden aan de criteria van een psychiatrische stoornis dan niet-geadopteerden met een hoog ouderlijk SES. Concluderend, interlandelijk geadopteerden hebben een groter risico op ernstige psychische gezondheidsproblemen in de volwassenheid dan niet-geadopteerden van dezelfde leeftijd.

In **hoofdstuk 3**, werd informatie gegeven over verschillende aspecten van sociaal functioneren van jong volwassen interlandelijk geadopteerden vergeleken met niet-geadopteerden. Een breed scala van biografische karakteristieken, waaronder burgerlijke staat, leefsituatie, kinderen, opleidings- en beroepsniveau, werd onderzocht. Daarbij werd het sociaal functioneren in verschillende gebieden van het dagelijks leven bestudeerd.

Geadopteerden hadden minder vaak vaste relaties, woonden minder vaak samen en waren minder vaak gehuwd dan niet-geadopteerden. Het opleidings- en beroepsniveau van geadopteerden was gelijk aan dat van de algemene bevolking. In de meeste gebieden van sociaal functioneren in het dagelijks leven, zoals opleiding, beroep, sociale contacten, huishouden en vrije tijd, functioneren geadopteerden hetzelfde als niet-geadopteerden. Geadopteerde mannen lieten iets minder gunstige uitkomsten zien dan geadopteerde vrouwen. Het dagelijks sociaal functioneren en de prestaties van jong volwassen interlandelijk geadopteerden blijken op hetzelfde niveau te zijn met dat van niet-geadopteerden, ondanks hun hoge risico op psychiatrische stoornissen.

In **hoofdstuk 4**, bestudeerden we de relatie tussen het ouderlijk SES en het opleidingsniveau van hun (volwassen) kinderen in een adoptie- en een algemeen bevolkingscohort. Bij geadopteerden werd geen relatie gevonden tussen ouderlijk SES en het opleidingsniveau, terwijl in de algemene bevolking de kinderen, genetisch verwant aan hun ouders, met een hoog ouderlijk SES een veel hoger opleidingsniveau hadden bereikt dan diegenen met een laag ouderlijk SES. Dit duidt erop dat genetische verwantschap ten grondslag ligt aan de relatie tussen ouderlijk SES en opleidingsniveau. Daarbij laten deze resultaten zijn dat het schoolsysteem in Nederland egalitair is; de opleidingskansen van kinderen worden niet bepaald door het SES van hun ouders.

In **hoofdstuk 5**, vergeleken we het 14-jarige beloop van internaliserende en externaliserende probleemgedragingen van interlandelijk geadopteerden met dat van niet-geadopteerden. Data van drie tijdsmetingen toonden aan dat internaliserende problemen bij geadopteerden toenamen van de kindertijd naar de volwassenheid, terwijl dit in de algemene bevolking stabiel bleef. Externaliserende problemen namen af van de kindertijd naar de volwassenheid bij geadopteerden, maar deze afname was veel kleiner dan de afname in de algemene bevolking. De meest problematische ontwikkelingen werden gezien bij geadopteerde mannen en geadopteerden met een laag en midden ouderlijk SES. Deze resultaten laten zien dat interlandelijk geadopteerden hogere niveaus van probleemgedrag hebben in de kindertijd als wel in de volwassenheid dan niet-geadopteerden. Door de tijd heen nemen de verschillen tussen geadopteerden en niet-geadopteerden toe.

In **hoofdstuk 6**, bestudeerden we de prevalentie van zoeken naar biologische ouders bij interlandelijk geadopteerden en onderzochten we welke factoren geassocieerd zijn met deze zoektocht. Bijna één derde van de interlandelijk geadopteerden in onze steekproef zoekt naar zijn biologische ouders of is met hen herenigd. Van diegenen die niet zoeken was de helft wel geïnteresseerd in zijn biologische ouders. Terwijl de meerderheid van de zoekers

goed functioneerde, hadden zij in vergelijking met niet-zoekers zonder interesse in de biologische ouders meer probleemgedrag in de adolescentie en meer psychiatrische stoornissen in de volwassenheid. Echter, deze problemen werden niet door de zoektocht zelf veroorzaakt. Diegenen die zochten naar hun biologische ouders hadden al in de kindertijd meer interesse in hun oorsprong. Het verlangen om te zoeken lijkt redelijk stabiel te zijn door de tijd heen. Echter, verschillende externe factoren, zoals scheiding van de adoptieouders, verbroken contact met adoptieouders of de aanwezigheid van een biologische kind van de adoptieouders in het gezin, bleken de neiging om te zoeken te beïnvloeden.

In **hoofdstuk 7**, werden de belangrijkste resultaten en conclusies van dit proefschrift samengevat en bediscussieerd. De huidige studie liet zien dat jong volwassen interlandelijk geadopteerden een groter risico hebben op het ontwikkelen van psychische gezondheidsproblemen. Met name geadopteerde mannen en geadopteerden met een hoog ouderlijk SES lieten minder gunstige uitkomsten zien. Echter, het is belangrijk om te onderstrepen dat de meerderheid van de geadopteerden geen psychiatrische stoornissen heeft en dat het sociaal functioneren van geadopteerden gelijk is aan dat van niet-geadopteerden. Verschillende beperkingen van de studie en implicaties volgend uit deze resultaten werden besproken.

Dankwoord
Curriculum Vitae

Dankwoord

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Curriculum Vitae

Wendy Tieman werd geboren op 8 februari 1979 te Rotterdam. In 1997 behaalde zij haar Gymnasium diploma aan het Emmauscollege te Rotterdam. In 1998 startte zij met de studie Pedagogische Wetenschappen aan de Universiteit van Leiden. Tijdens haar studie was zij als student-assistent werkzaam bij de vakgroepen Algemene & Gezinspedagogiek (1999) en Onderwijsstudies (2000/2001). Tijdens haar onderzoeksstage aan de Universiteit van Amsterdam deed zij kwalitatief onderzoek naar kinderen die opgroeien bij lesbische moeders. In juli 2001 behaalde zij haar doctoraal Pedagogische Wetenschappen in de afstudeerrichting Jeugdbeleid en Jongerenstudies.

Vanaf augustus 2001 was zij als junior onderzoeker aangesteld op de afdeling Kinder- en Jeugdpsychiatrie van het Erasmus MC – Sophia Kinderziekenhuis te Rotterdam. In deze periode werd een onderzoek uitgevoerd naar het functioneren van geadopteerden in de volwassenheid, waarvan de resultaten in dit proefschrift beschreven zijn. Vanaf augustus 2003 vervulde zij tevens een post-doc functie in de voorbereiding van het onderzoek "Aggressive behavior in a sample of intercountry adoptees: a study of gene-environment interaction".

Sinds februari 2006 heeft zij een aanstelling bij de afdeling Algemene & Gezinspedagogiek - Datatheorie van de Universiteit Leiden, eerst als onderwijsmedewerker en vanaf juli 2006 als universitair docent.