Mental health problems of Dutch young adult domestic adoptees compared to non-adopted peers and international adoptees

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Abstract
We examined the mental health problems of Dutch young adult domestic adoptees (N=75) relative to Dutch non-adopted peers and Dutch international adoptees. We found small differences in favor of the non-adopted peers (N=2021), while a minority of male domestic adoptees were at risk of anxiety/depression problems. Domestic adoptees showed somewhat less problems behavior than international adoptees (N=1331). Domestic and international adoptees differed in search status (non-searcher, searcher, reunited), although this could not explain any differences in mental health problems. Social workers and clinicians should support (male) adult adoptees in...
coping with possible feelings of anxiety and depression. Future studies should pay attention to gender differences in adoptees.

Keywords
Domestic adoption, Dutch, international adoption, mental health, problem behavior, young adults

Introduction
Although numerous studies have examined the mental health problems of adopted children and adolescents, relatively few studies have investigated mental health problems of adult adoptees (see also Grotevant and McDermott, 2014; Palacios and Brodzinsky, 2010). From the theoretical perspective of risk and protective factors (Rutter, 1987; Werner, 1993), adoption provides a unique situation: adoptees often experience early adversity (risks) before they move to an improved rearing environment after adoption (protective factors). During their life, adoptees face unique adoption issues, for example coping with the loss of their birth family, questioning their identity, and searching for origins (Brodzinsky, 1990; Juffer and Tieman, 2009). In the current study, conducted in the Netherlands, we compared the mental health problems of young adult domestic adoptees with those of non-adopted young adults from the general population and with young adult international adoptees, taking into account possible gender differences. For the two adoptee samples, we also explored the roles of age at adoption and search for biological origins.

The numbers of domestic and international adoptions vary widely across countries. In the United Kingdom and United States, most adoptions are domestic (Selman, 2012). For example, international adoption accounted for 13 percent of all adoptions in 2008 in the United States (Child Welfare Information Gateway, 2011). In contrast, in many European countries, including the Scandinavian countries, Spain, Italy, France, and the Netherlands, the annual number of domestic adoptions is (much) lower than the number of international adoptions (Selman, 2012).

Dutch adoption law originates from 1956 and started off mainly as a law to find families for children born out of wedlock in a society where single motherhood was not yet socially accepted (Dekker et al., 2011). In the Netherlands, domestic adoptions outnumbered international adoptions until the mid-1970s and since then domestic adoptions have steadily decreased, whereas international adoptions have increased (although with a recent decline). Numbers of Dutch domestic adoptions have decreased to only 20–30 infants per year in the last two decades for several reasons: growing acceptance of single motherhood, availability of birth control, legal abortion since the early 1980s, and low rates of teenage pregnancies.

Domestic adoption in the Netherlands is only considered in the best interest of the child when the biological parent relinquishes parental rights freely without interference of the court. All birth mothers receive counseling beforehand and have access to counseling or mental health services after the relinquishment. The prospective parents both in international as well as in domestic adoption receive an official adoption permit after an elaborate home study by the Dutch Child Protection Board and after attending a compulsory pre-adoption course issued by the Foundation Adoption Services. The latter started in 1989; before that date the preparation was done by the Child Protection Board. Without the adoption permit, the adoption cannot be legalized. If the prospective parent(s) are proven fit for domestic adoption during the home study, the couple is placed on the Dutch adoption list.

In the situation of a domestic adoption, the child is often placed in a temporary foster family for three months, followed by the adoptive placement and, after a year, a court ruling to finalize the
adoption formally. During the first year the birth mother has the right to revoke her relinquishment, although this hardly ever occurs (Vinke, 2014). In addition, Dutch children removed from their birth parents by Child Protection Services are placed in (long-term) foster families rather than adoptive families. This makes the Dutch situation different from Anglo-Saxon countries, where adoption is also used as a child protection measure and an adoption order can be issued after termination of parental rights. In the Netherlands, no formal contact arrangements (such as open adoptions or adoptions with mediated contact; Grotevant and McDermott, 2014) between the adoptive family and birth family exist, and this is the case for both domestic and international adoptions.

Mental health problems of adult adoptees

Adopted children illustrate the theory of risk and protective factors. They often start their life with experiences of early adversity, including separation from their birth parent(s), lack of adequate pre- and postnatal care, malnutrition, abuse, and neglect in institutions. However, after a period of deprivation, they are placed in usually nurturing adoptive homes, and most adopted children profit from this drastic transition and show substantial catch-up growth and developmental gains (Rutter et al., 2007; Van IJzendoorn and Juffer, 2006). Although their catch-up growth is impressive, adopted children keep lagging behind their non-adopted peers in several areas of development, including physical growth, attachment, and school achievement, although effect sizes in most areas are relatively small (Van IJzendoorn and Juffer, 2006).

A comprehensive meta-analysis on the mental health problems of adoptees (Juffer and Van IJzendoorn, 2005) including 64 empirical studies showed that adoptees display more internalizing or externalizing behavior problems; however, the effect sizes ($d=0.16$ and $d=0.24$, respectively) were small, indicating that most adoptees are well adjusted. Adoptees are referred to mental health services more often than their non-adopted counterparts, and this was a substantial effect ($d=0.72$). In contrast to expectations, this meta-analysis found more behavior problems and mental health referrals in domestic adoptees than in international adoptees. Juffer and Van IJzendoorn (2005) suggested that these differences may be explained by varying backgrounds of the adopted children and by varying characteristics of the adoptive parents. Whereas internationally adopted children often experienced environmental adversity (neglect in institutions, malnutrition), domestic adoptees may be environmentally and genetically at risk because they were placed for adoption because of psychiatric problems or drug/alcohol abuse of the birth parent(s) (Juffer and Van IJzendoorn, 2005). As domestic adoption in the Netherlands does not include Child Protection Services placements, it can be expected that compared to other countries adverse environmental risks are less likely to be the case. Also, because placements in adoptive families are often within six months after birth, the amount of time spent under adverse conditions is limited. Furthermore, dependent on national adoption procedures, the two groups of adoptive parents may have different characteristics. Compared to parents adopting domestically, parents adopting internationally may be more highly educated and affluent, although this may differ between countries. Again, in the Netherlands this is less likely to be the case, as domestic and international adoptive parents come from the same pool of prospective parents.

Differences between domestic and international adoptees may also vary in developmental stages. Convergent with the findings in the meta-analysis mentioned before, a study in adolescence directly comparing domestic and international adoptees in the United States showed that domestic adolescent adoptees presented more externalizing behavior disorders than international adolescent adoptees (Keyes et al., 2008). We do not know, however, whether these outcomes can be generalized to adoptees in adulthood. In the meta-analysis of Juffer and Van IJzendoorn (2005), only 6 of the 64 empirical studies included (young) adult adoptees, while the other 58 studies examined children and adolescents.
Empirical evidence on adult adoptees has shown that some studies (from several countries, including Sweden, the UK, and the US) found no differences between the mental health of adopted adults and that of their non-adopted peers (Cederblad et al., 1999; Collishaw et al., 1998; Feigelman, 1997; Rushton et al., 2013). Other studies (from the US, Sweden, New Zealand, and the Netherlands) reported higher rates of mental health problems or an overrepresentation of mental health referrals for adult adoptees compared to their non-adopted counterparts (Cubito and Brandon, 2000; Lindblad et al., 2003; Loehlin et al., 2007; Sullivan et al., 1995; Tieman et al., 2005). Most studies used large samples of non-adoptees that were representative of a large area or nation (e.g. Collishaw et al., 1998; Rushton et al., 2013) or were large population-based studies from Sweden (e.g. Cederblad et al., 1999; Lindblad et al., 2003) and the US (Feigelman, 1997). In some studies, socioeconomic status (SES)/educational level was similar for adoptees and non-adopted peers (e.g. Lindblad et al., 2003; Sullivan et al., 1995), whereas in other studies adoptees had a higher SES or educational level (e.g. Collishaw et al., 1998; Feigelman, 1997; Rushton et al., 2013). None of these studies directly compared mental health problems of adult domestic adoptees and adult international adoptees, except for one study in the UK that compared adult female domestic adoptees ($N=72$; main reason for relinquishment was social pressure due to being born out of wedlock) with international female adoptees ($N=50$) (Rushton et al., 2013). This study found no differences in mental health problems between these two groups (Rushton et al., 2013).

**Male adult adoptees at risk?**

In research based on the risk and protective factors theory, being male was found to be a risk factor: in the face of adversity, boys were more often affected than girls (Werner, 1993). Is this also the case with adoptees? In the meta-analysis on the behavior problems of international adoptees (Juffer and Van IJzendoorn, 2005), no gender differences were found. However, this meta-analysis predominantly included studies on children and adolescents (and hardly any study on adults; see earlier) and the role of gender as a moderator was only taken into account in the international adoption samples, not in the domestic adoption samples.

Some studies have indicated that male adult adoptees run a higher risk of presenting mental health problems than female adult adoptees. In a Dutch study on adult international adoptees including adoptees from severely deprived backgrounds, adopted males were more likely to have a mood disorder than non-adopted males, whereas for women there was no significant difference between adoptees and their non-adopted counterparts (Tieman et al., 2005). In another Dutch study including adoptees from mildly depriving backgrounds, male adult international adoptees reported more problems of depression than normative non-adopted peers, and they were overrepresented in the clinical range of depression, whereas this was not the case for female adopted adults (Storsbergen et al., 2010). In contrast, in two studies conducted in the US and New Zealand, male and female domestic adoptees did not differ and both sexes showed elevated rates of mental health problems (Cubito and Brandon, 2000; Sullivan et al., 1995), and the same was true for a US study on adoptees (not differentiated in domestic and international) examining substance abuse disorder (Yoon et al., 2012).

**Age at placement and searching for origins**

Mental health of adult adoptees may be related to age at adoptive family placement and the adoptee’s search for their biological origins (Grotevant and McDermott, 2014). In the meta-analysis of mental health problems in adoptees (Juffer and Van IJzendoorn, 2005), age at adoptive placement
did not predict behavior problems in international adoptees, but we do not know whether this can be generalized to adult (domestic) adoptee samples.

During their life, adoptees face unique questions, for example about their biological origins and identity (Brodzinsky, 1990). Adoptees’ curiosity about their birth history (Wrobel and Dillon, 2009) may for some adoptees result in the decision to search for their birth family, whereas others choose not to do so. A few studies have indicated that adoptees’ search status is associated with behavior problems. Regarding search status, adoptees can be distinguished into non-searchers (not searching for biological family), searchers (searching for biological family), and reunited (having met the biological family). One Dutch study found that searchers had more mental health problems than non-searchers or reunited international adoptees (Tieman et al., 2008). Another Dutch international adoption study showed that compared to searchers, non-searchers reported fewer mental health problems, a higher level of well-being, and higher self-esteem (Storsbergen et al., 2010). An American study on domestic adoptees (Cubito and Brandon, 2000) also found that searchers showed somewhat more psychological maladjustment than non-searchers. In the longitudinal study by Tieman et al. (2008), future searchers were found to have higher levels of problem behavior in childhood – before beginning their search – than future non-searchers. Thus, higher levels of mental health problems among searchers do not seem to be caused by the search itself.

The current study

In this study we examined the mental health problems of young adult domestic adoptees compared to non-adopted young adults and young adult international adoptees, and we hypothesized that the domestic adult adoptees would show more behavior problems than both their non-adopted and internationally adopted peers. Because of mixed previous research findings, we did not have specific expectations about the risk of mental health problems in male versus female domestic adoptees. Finally, we explored the roles of age at family placement and searching for origins in the two adoptee samples. We expected that domestic adoptees would be more likely to have met their birth parents than international adoptees because it is easier to search and find birth family within the country.

Method

Participants and procedure

We compared the mental health problems of 75 young adult domestic adoptees with those of two samples: non-adopted young adults from the general population ($N=2021$) and young adult international adoptees ($N=1331$). All participants completed a self-report questionnaire on emotional and behavioral problems, and the domestic and international adoptees answered questions about their search status.

Domestic adoption sample. We included 75 young adult domestic adoptees (46 female), aged 20–30 years ($M=26.5$; $SD=2.6$). The adoptees’ educational level was low for 17 percent (lower vocational training or less), medium for 44 percent, and high for 39 percent (Bachelor level or higher). The average age of the birth mothers was 21.6 years ($SD=6.2$), and 46.2 percent were teenage mothers. Almost all birth mothers were single (93.4%) and gave birth to their first child (83.5%). The majority had a low (57.8%) to medium (33.3%) educational level. Finally, for 22.8 percent of the birth mothers mental health problems were reported, and for 9.5 percent problems with alcohol or drugs during pregnancy or around the time of giving birth.
The sample was based on a random sample of 272 out of all domestic adoptees born between 1980 and 1990, and legally adopted before seven years of age (N=567), drawn from the central adoption register of the Ministry of Justice in the Netherlands. To guarantee independence of the data, 19 adoptees were randomly excluded because they had a sibling within the same adoptive family who also met the inclusion criteria. Of the remaining 253 families, 26 families could not be approached because the adopted child had died, was untraceable, or had emigrated. Because there was no certainty that the adoptees had been informed about their adoptive status, only adoptive parents were traced and contacted by a letter through the Ministry of Justice. Finally, 97 out of the 227 included adoptive families responded (43%), with 217 eligible domestically adopted children (10 adoptees could not participate: deceased, intellectually disabled, or living abroad). Adoptees were then invited through their adoptive parent(s) (N=97), resulting in 75 participating adoptees (35% response of the eligible 217 children; 77% response of the 97 responding families; reasons for not participating: lack of interest or unknown reasons).

To enable post hoc non-response analyses and comparison of participants and eligible non-participants in the domestic adoptees sample (N=217), separately for males and females, we collected data on background variables through a case record study at the Dutch Ministry of Justice and Child Protection Board. Information about the adoptee included birth year, gender, ethnicity, and age at adoptive placement. Data on the birth mother included age at relinquishment, ethnicity, mental health or behavioral problems, problems with alcohol or drugs use (for up to 40% of the birth fathers’ information on these variables was also available), educational level, marital status, main reasons for relinquishment, pregnancy due to sexual abuse, and whether this was her first child. Finally, information about the adoptive parents was gathered: age at the time of the adoption, ethnicity, reasons for adoption, and whether or not they already had an (adopted) child.

**General population sample.** Data from a cross-sectional general population study of young adults was used as comparison sample (Vanheusden et al., 2008, 2009). A random sample of 3338 19- to 30-year-olds from 35 randomly selected municipalities of the Dutch province of Zuid-Holland was approached to participate in a survey. Of the 3173 eligible young adults (165 persons were excluded because of intellectual or physical disability, a language barrier, moving away, or death), 2258 people participated (71%). The random selection of municipalities and the relatively high response rate ensured that this sample was a reasonably good comparison group, although non-respondents were somewhat more likely to be male, non-Dutch, and younger than those who did respond (Vanheusden et al., 2008, 2009). For this study, we included 20- to 30-year-olds (M=25.0 years; SD=3.2) with data on self-reported problem behavior (N=2035; 1092 female). A low educational level (lower vocational training or less) was achieved by 13 percent of the young adults, 42 percent had a medium educational level, and 45 percent had a higher level (Bachelor or higher).

**International adoption sample.** This sample was based on data from the third assessment of a longitudinal study of all children legally adopted in the Netherlands and born outside the Netherlands between 1972 and 1975 (Tieman et al., 2005; Verhulst, 2000; Verhulst et al., 1990). The adoptees were identified through records of the central adoption register of the Ministry of Justice. Of the 3309 included adoptive parents and their 10- to 15-year-old internationally adopted children, 2148 participated (65%) at the first assessment. The top five of countries of origin were South Korea (32%), Colombia (15%), India (9.5%), Indonesia (8%), and Bangladesh (7%). Prior to adoption, many of the adoptees had been in institutional care and many had experienced severe early adversities. In total, 45 percent had experienced neglect, 13 percent abuse, 54 percent multiple pre-adoption placements, and 43 percent had poor health on arrival. About three years later a
second assessment took place. At the third assessment, international adoptees, now between 22 and 32 years old, were personally invited to participate in the study. Of the 1885 adoptees from the first measurement that could be traced, 1521 participated (response: 74%). In adulthood, adoptees were more likely to present mental health problems than non-adoptees from the general population (Tieman et al., 2005).

The current study was restricted to 1331 international adoptees aged 22–30 years (741 females) who were adopted before the age of six years and reported on their emotional and behavior problems. Their mean age at the time of the study was 26.2 years (SD = 1.3). A low educational level (lower vocational training or less) was achieved by 27% of the international adoptees, 42% had a medium educational level (high school or medium vocational training) and 31% percent had a higher level (Bachelor’s degree or higher). The sample of international adoptees was comparable with the sample of domestic adoptees on the demographics of mean age at study, gender, and educational level (all ps > .05).

**Measures**

**Emotional and behavioral problems.** The Dutch translation of the Adult Self-Report (ASR; Achenbach and Rescorla, 2003; Achenbach et al., 2008) was used to examine the level and severity of mental health problems in the past six months of the young adult domestic adoptees. The ASR comprises 123 statements on emotional and behavioral problems which can be scored with 0 = *not true*, 1 = *somewhat true*, or 2 = *very true*. The ASR consists of eight empirically based syndrome scales: Anxious/Depressed (18 items), Withdrawn (9 items), Somatic Complaints (12 items; all three scales together constitute the Internalizing Problems Scale), Aggressive Behavior (15 items), Rule-Breaking Behavior (14 items), Intrusive (6 items; all three scales together constitute the Externalizing Problems Scale), Thought Problems (10 items), and Attention Problems (15 items). Finally, the Total Problem Scale consists of 120 problem items. Examples of ASR items are ‘I feel worthless or inferior’ (Anxious/Depressed) and ‘I do things that may cause me trouble with the law’ (Rule-Breaking Behavior). Good reliability and validity have been demonstrated for the ASR (Achenbach and Rescorla, 2003). Cronbach’s alpha (α) was above .75 for 8 of the 11 ASR-scales and ranged from .60 to .95 in the domestic adoptees sample (Table 1). For this study, we used raw ASR-scale scores and dichotomized scale scores based on US norms for the borderline/clinical range (T ≥ 65 for syndrome scales and T ≥ 60 for Internalizing, Externalizing, and Total Problem Score; Achenbach and Rescorla, 2003).

The ASR was used to compare the problem behaviors of the domestic adoptees and the non-adopted young adults. To compare the problem behaviors of the domestic adoptees (assessed with the ASR) and the international adoptees (assessed with the precursor of the ASR, the YASR: Young Adult Self-Report; Ferdinand et al., 1995), we used the same syndrome scales but only included items that were comparable between the ASR and the YASR (87% of the ASR items).

**Search status.** Following Tieman et al. (2008), we distinguished searchers, reunited adoptees, and non-searchers within the two samples of adoptees. Searchers were defined as those who answered ‘yes’ or ‘sometimes’ to at least one of the following questions: (a) ‘I collect information about my birth parents’, (b) ‘I have made plans to meet my birth parents’, and (c) ‘I have contact with an organization that tries to find my birth parents’. Sibling and relative search were also included in searching (Humphrey and Humphrey, 1989). Reunited adoptees were defined as those who stated in the questionnaire that they had met their birth father, mother, sibling(s) (excluding birth siblings placed in the same adoptive family), or other birth relatives. Adoptees not meeting the criteria of these two groups were included in the non-searchers category.
**Age at family placement.** Age at family placement was defined as the time in months between birth and placement within the adoptive family.

### Statistical analyses

Gender was taken into account in all analyses. Analyses of variance (ANOVAs) were performed to test for mean differences in ASR-scale scores for adoption status (domestic adoptees vs non-adopted peers) and for mean differences in adjusted ASR-scale scores for type of adoption (domestic vs international adoptees). In each ANOVA, the main effect of gender, the interaction of gender by adoption status, and age as a continuous covariate were included in the model. As educational level did not differ between domestic adoptees and non-adopted peers ($p = .15$), nor between domestic and international adoptees ($p = .27$), it was not included as a covariate in the analyses. Partial eta squared was reported as effect size and interpreted according to Cohen’s (1988) criteria (small effect size: $\eta^2 = .01$, medium effect size: $\eta^2 = .06$, and large effect size: $\eta^2 = .14$).

Logistic regression analyses were used to test the relative risk of scoring in the borderline/clinical range of each ASR-scale for adoption status (domestic adoptees vs non-adopted peers), controlling for gender ($male = 0$; $female = 1$), age (continuous covariate), and testing the adoption status by gender interaction effect. Whenever a significant ($p < .05$) interaction effect was found, logistic regression analyses were performed for males and females separately to calculate the odd ratios (ORs) within each gender. ORs with their 95 percent confidence intervals (95% CIs) are reported. Post hoc non-response analyses were conducted to examine whether a differential response bias was present in male or female domestic adoptees.

Finally, with ANOVAs we assessed mean differences in adjusted ASR-scores for type of adoption (domestic vs international adoptees), gender, gender by type of adoption, and age, and adding in the analyses age at family placement and search status and their interaction with type of adoption.

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**Table 1.** Comparing ASR² means (M) and standard deviations (SDs) between domestic adoptees and non-adopted peers

<table>
<thead>
<tr>
<th></th>
<th>Domestic adoptees</th>
<th>Non-adopted peers</th>
<th>Adoption status by gender $p^*$ (partial $\eta^2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\alpha$ Male, M (SD)</td>
<td>Female, M (SD)</td>
<td>$\alpha$ Male, M (SD)</td>
</tr>
<tr>
<td>Anxious/Depressed</td>
<td>.89 7.0 (7.6)</td>
<td>6.1 (4.7)</td>
<td>.92 5.2 (5.5)</td>
</tr>
<tr>
<td>Withdrawn</td>
<td>.76 3.8 (2.9)</td>
<td>2.4 (2.7)</td>
<td>.76 2.9 (2.7)</td>
</tr>
<tr>
<td>Somatic Complaints</td>
<td>.65 3.2 (3.3)</td>
<td>3.1 (2.6)</td>
<td>.79 2.3 (2.8)</td>
</tr>
<tr>
<td>Attention Problems</td>
<td>.78 7.2 (4.4)</td>
<td>6.8 (4.8)</td>
<td>.83 6.3 (4.7)</td>
</tr>
<tr>
<td>Thought Problems</td>
<td>.62 2.8 (2.6)</td>
<td>1.6 (1.8)</td>
<td>.66 1.8 (2.1)</td>
</tr>
<tr>
<td>Aggressive Behavior</td>
<td>.79 6.1 (4.5)</td>
<td>4.4 (3.3)</td>
<td>.84 3.8 (3.9)</td>
</tr>
<tr>
<td>Rule-Breaking Behavior</td>
<td>.82 4.9 (4.5)</td>
<td>2.6 (2.7)</td>
<td>.71 3.5 (3.0)</td>
</tr>
<tr>
<td>Intrusive</td>
<td>.60 2.8 (2.0)</td>
<td>1.7 (1.5)</td>
<td>.68 2.1 (2.0)</td>
</tr>
<tr>
<td>Internalizing</td>
<td>.92 14.0 (12.4)</td>
<td>11.5 (8.4)</td>
<td>.92 10.4 (9.5)</td>
</tr>
<tr>
<td>Externalizing</td>
<td>.89 13.8 (9.2)</td>
<td>8.7 (6.3)</td>
<td>.87 9.4 (7.2)</td>
</tr>
<tr>
<td>Total Problems</td>
<td>.95 47.6 (27.3)</td>
<td>36.9 (22.2)</td>
<td>.96 36.4 (24.0)</td>
</tr>
</tbody>
</table>


*Age is used as covariate in all analyses of variance (ANOVAs).

Adoption status = adopted versus non-adopted.


*p-value only reported if $p < .05$.

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**International Social Work**
Results

First, we compared the mental health problems of the domestic adoptees with those of the non-adopted young adults. We then compared the domestic adoptees with the international adoptees. Finally, for the two adoptee samples we explored the role of age at family placement and search status.

Domestic adoptees versus non-adopted young adults

Level of behavior problems. Comparing the levels of mental health problems of domestic adoptees and non-adopted young adults, we found significant, yet small differences. Except for domestic adoptees (males and females) who had higher mean scores on Rule-Breaking Behavior compared to non-adopted peers ($p = .002$; partial $\eta^2 = .002$), most differences between the samples were moderated by gender. Domestically adopted males had significantly higher mean scores on Total Problems ($p = .012$), Internalizing ($p = .047$), Attention Problems ($p < .001$), Thought Problems ($p < .01$), and Aggressive Behavior ($p = .002$) than young adult males from the general population. No significant mean differences in these scales between domestic adoptees and non-adopted peers were found for females.

Relative risk of behavior problems in the borderline/clinical range. Table 2 shows the percentages of domestic adoptees and non-adopted young adults scoring in the borderline/clinical range of the ASR-scales. No significant main effect of adoption status was found while controlling for gender, age, and their interaction. A significant disordinal adoption status by gender interaction effect ($p < .05$) was found for Anxious/Depressed ($p = .014$), Somatic Complaints ($p = .013$), and Internalizing ($p = .038$). Post hoc probing of these moderating effects (Holmbeck, 2002) showed that only a significant main effect could be found in males for Anxious/Depressed (17.2% vs 7%; $p = .037$). Domestically adopted males had a higher risk (OR = 2.9; 95% CI = 1.1–7.9) of scoring in the borderline/clinical range of Anxious/Depressed compared to non-adopted males.

Table 2. Percentage scores in ASR\(^a\) borderline/clinical range comparing domestic adoptees with non-adopted peers in the general population

<table>
<thead>
<tr>
<th></th>
<th>Domestic adoptees</th>
<th>Non-adopted peers</th>
<th>Adoption status(^b) by gender p(^*)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% male (n = 29)</td>
<td>% female (n = 46)</td>
<td>% male (n = 943)</td>
</tr>
<tr>
<td>Anxious/Depressed</td>
<td>17.2</td>
<td>4.3</td>
<td>7.0</td>
</tr>
<tr>
<td>Withdrawn</td>
<td>20.7</td>
<td>13.0</td>
<td>10.9</td>
</tr>
<tr>
<td>Somatic Complaints</td>
<td>13.8</td>
<td>2.2</td>
<td>6.1</td>
</tr>
<tr>
<td>Attention Problems</td>
<td>10.3</td>
<td>8.7</td>
<td>5.4</td>
</tr>
<tr>
<td>Thought Problems</td>
<td>17.2</td>
<td>4.3</td>
<td>6.3</td>
</tr>
<tr>
<td>Aggressive Behavior</td>
<td>6.9</td>
<td>2.2</td>
<td>3.0</td>
</tr>
<tr>
<td>Rule-Breaking Behavior</td>
<td>13.8</td>
<td>4.3</td>
<td>6.8</td>
</tr>
<tr>
<td>Intrusive</td>
<td>3.4</td>
<td>2.2</td>
<td>2.7</td>
</tr>
<tr>
<td>Internalizing</td>
<td>27.6</td>
<td>13.0</td>
<td>18.3</td>
</tr>
<tr>
<td>Externalizing</td>
<td>24.1</td>
<td>10.9</td>
<td>11.1</td>
</tr>
<tr>
<td>Total Problem Score</td>
<td>13.8</td>
<td>8.7</td>
<td>12.0</td>
</tr>
</tbody>
</table>

\(^a\)Age is used as covariate in all logistic regression analyses; \(^b\)Adoption status = adopted versus non-adopted.
\(^*\)p-value only reported if $p < .05$. 

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To test whether male and female domestic adoptees showed a differential response bias, which could help explain the increased level of mental health problems in males, we performed post hoc non-response analyses, separately for males and females. We compared participants and eligible non-participants on the background variables described in the ‘Method’ section. T-tests and chi-square analyses using Fisher’s exact test showed no significant differences (all \( p > .05 \)) between participants and eligible non-participants on all except one of the background variables. Comparing participating with non-participating male and female adoptees, we found female participants to have a higher likelihood of having a birth father with mental health problems than female non-participants (15% vs 2%; \( \chi^2(1, N = 98) = 5.46, p = .026 \)).

In addition, male and female domestic adoptees in the current sample did not significantly (all \( p > .05 \)) differ on any of the background variables.

### Table 3. Comparing ASR\(^ab\) means (M) and standard deviations (SDs) between domestic and international adoptees

<table>
<thead>
<tr>
<th></th>
<th>Domestic adoptees</th>
<th>International adoptees</th>
<th>Adoption type(^c) ( p^{b} ) ((\eta^2))</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \alpha )</td>
<td>Male, M (SD) (n = 29)</td>
<td>Female, M (SD) (n = 46)</td>
</tr>
<tr>
<td>Anxious/Depressed</td>
<td>.89</td>
<td>7.0 (7.6)</td>
<td>6.1 (4.7)</td>
</tr>
<tr>
<td>Withdrawn</td>
<td>.76</td>
<td>3.8 (2.9)</td>
<td>2.4 (2.8)</td>
</tr>
<tr>
<td>Somatic Complaints</td>
<td>.65</td>
<td>3.2 (3.2)</td>
<td>3.1 (2.6)</td>
</tr>
<tr>
<td>Attention Problems</td>
<td>.56</td>
<td>3.9 (2.4)</td>
<td>3.5 (2.2)</td>
</tr>
<tr>
<td>Thought Problems</td>
<td>.62</td>
<td>2.8 (2.6)</td>
<td>1.6 (1.8)</td>
</tr>
<tr>
<td>Aggressive Behavior</td>
<td>.75</td>
<td>4.0 (3.2)</td>
<td>2.4 (2.0)</td>
</tr>
<tr>
<td>Rule-Breaking Behavior</td>
<td>.78</td>
<td>4.1 (3.7)</td>
<td>2.2 (2.2)</td>
</tr>
<tr>
<td>Intrusive</td>
<td>.60</td>
<td>2.8 (2.0)</td>
<td>1.7 (1.5)</td>
</tr>
<tr>
<td>Internalizing</td>
<td>.92</td>
<td>14.0 (12.4)</td>
<td>11.5 (8.4)</td>
</tr>
<tr>
<td>Externalizing</td>
<td>.86</td>
<td>10.9 (7.1)</td>
<td>6.3 (4.7)</td>
</tr>
<tr>
<td>Total Problems</td>
<td>.94</td>
<td>36.7 (22.0)</td>
<td>27.4 (16.7)</td>
</tr>
</tbody>
</table>

\(^a\)Age is used as covariate in all analyses of variance (ANOVAs).
\(^b\)Adjusted ASR-scales: including only corresponding items of Young Adult Self-Report (YASR) and ASR.
\(^c\)Adoption type = domestic versus international adoption.
\(^*\)p-value only reported if \( p < .05 \).

**Post hoc analyses for male and female domestic adoptees.** To test whether male and female domestic adoptees showed a differential response bias, which could help explain the increased level of mental health problems in males, we performed post hoc non-response analyses, separately for males and females. We compared participants and eligible non-participants on the background variables described in the ‘Method’ section. T-tests and chi-square analyses using Fisher’s exact test showed no significant differences (all \( p > .05 \)) between participants and eligible non-participants on all except one of the background variables. Comparing participating with non-participating male and female adoptees, we found female participants to have a higher likelihood of having a birth father with mental health problems than female non-participants (15% vs 2%; \( \chi^2(1, N = 98) = 5.46, p = .026 \)). In addition, male and female domestic adoptees in the current sample did not significantly (all \( p > .05 \)) differ on any of the background variables.

### Domestic adoptees versus international adoptees

**Level of behavior problems.** Few and small mean differences were found between domestic adoptees and international adoptees (see Table 3). Domestic adoptees had significantly lower mean scores on Anxious/Depressed and Internalizing. No overall moderating effects of gender were found.

**Age at family placement.** The domestic adoptees were placed in their adoptive families at a mean age of 4.4 months (SD = 2.2; range = 0–14.6 months), with no difference between males and females. The mean age at family placement of the international adoptees was 24.7 months (SD = 19.9; range = 1–71 months), again with no difference between males and females. Domestic adoptees were on average significantly \((p < .001)\) younger at the time of adoptive placement than the international adoptees. The time between birth and placement in the adoptive family moderated the relation between type of adoption and the level of Anxious/Depressed problems \((p = .033)\) and tended to do so with Withdrawn problems \((p = .052)\). Correlation analyses showed that within the sample of domestic adoptees there was a moderate relation between age at adoptive placement and...
the level of Anxious/Depressed \((r = .43; p < .001)\) or Withdrawn problems \((r = .37; p = .001)\), whereas in the sample of international adoptees the relations with age at adoptive placement were small (Withdrawn: \(r = .06; p = .043\)) or not significant (Anxious/Depressed: \(r = .04; p > .05\)). Domestic adoptees adopted at younger ages presented fewer Anxious/Depressed and Withdrawn problems than domestic adoptees adopted at older ages, whereas similar relations were not present in the international adoptees sample.

**Search status.** As expected, domestic adoptees differed significantly in their search status from international adoptees \((\chi^2(2, N = 1411) = 56.39, p < .001)\). Domestic adoptees were more likely to be reunited with a member of their birth family compared to the international adoptees (46.8% vs 16.2%), somewhat comparable regarding searching for their birth family (22.8% vs 16.4%), and less likely to be not searching at all (30.4% compared to 67.3%). However, these differences did not explain differences in level of emotional and behavioral problems between the two adoptee samples (all types of adoption by search status interactions \(p > .05\)).

Examining the associations between level of emotional and behavioral problems (ASR-scales) and search status within the group of domestic adoptees (with gender taken into account), we found a significant effect for search status on Anxious/Depressed \((p = .048; \text{partial } \eta^2 = .084)\) and a significant interaction (search by gender) effect for Thought problems \((p = .035; \text{partial } \eta^2 = .092)\). Non-searchers tended to report \((p = .052)\) fewer Anxious/Depressed problems \((M = 4.1; SD = 4.6)\) than searchers \((M = 7.5; SD = 4.5)\) and reunited adoptees \((M = 7.3; SD = 7.0)\), and reunited male adoptees presented significantly \((p < .05)\) more Thought problems \((M = 4.4; SD = 3.4)\) than non-searching male adoptees \((M = 1.4; SD = 1.7)\).

**Discussion**

We compared the mental health problems of young adult domestic adoptees and non-adopted peers from the general population and found small, yet significant differences in favor of the non-adopted peers. This finding indicates that the large majority of the domestic adoptees were well adjusted as far as mental health is concerned; however, a minority, especially males, were at risk of emotional and behavior problems. Domestic male and female adoptees both showed more rule-breaking behavior than their non-adopted peers. Male domestic adoptees presented higher levels of problems with internalizing, externalizing, and overall behavior problems compared to non-adopted males. For female domestic adoptees, these risks were not found. Male domestic adoptees were almost three times more likely than non-adopted males to present problems in the borderline/clinical range of anxious/depressed behavior, representing people in need of mental health care.

Compared with the mental health problems of international adult adoptees, domestic adoptees reported fewer anxious/depressed and internalizing problems; however, these differences were small. An older age at adoptive placement was associated with more anxious/depressed and withdrawn problems in domestic adoptees but not in international adoptees. Finally, although domestic and international adoptees differed in search status, this did not explain the differences in mental health problems between the two samples.

Dutch domestic adoptees showed, in contrast to findings from a large meta-analytical study (Juffer and Van IJzendoorn, 2005), similar rates of mental health problems and even somewhat less (anxious/depressed and internalizing) problem behavior than international adoptees. Possible explanations may be found in the characteristics of the adoptive parents or adopted children in the Netherlands. In this study, parents of domestic adoptees were unlikely to differ from parents of international adoptees since all prospective parents were recruited from the same waiting list. Anecdotally, from interviews with social workers it could be inferred that families were selected.
for the (few) domestic adoption cases if they seemed to be able to have contact with the birth family in due time (and not on other criteria, such as SES) (Vinke, 1999). There were no known differences in adoption aftercare, because in the Netherlands post-adoption services are delivered by the same organizations to both families with domestic and international adoptees. Therefore, our groups of parents of domestic and international adoptees may be more homogeneous than in other countries where parents of international and domestic adoptees may differ regarding education and SES (with possible consequences for their children’s mental health). It should also be noted that the meta-analysis that revealed differences between domestic and international adoptees (Juffer and Van IJzendoorn, 2005) mainly included studies on children and adolescents and few studies on adult adoptees. Differences between domestic and international adoptees may vary in different developmental stages.

Another explanation may be found in the motives for relinquishment/adoption and the implications for the characteristics of the children involved. The domestic adoptees in this study were relinquished by their birth parent(s) because of several reasons (including teenage pregnancies), but not because the birth parents’ rights were terminated. In the Netherlands, most children removed from their birth families due to child protection orders are not placed in adoptive homes but rather in (long-term) foster care. Therefore, genetic risks and risks of neglect and abuse may be less prevalent in our sample of domestic adoptees than in other countries where the birth parents’ maladjustment is more often a reason for adoption. A final possible explanation may be found in the characteristics of the international adoptees in the current study. The international adoptees in this sample experienced high levels of pre-adoption adversity (Verhulst, 2000), which may have contributed to their higher levels of problem behavior compared to non-adoptees, similar to the higher levels of problem behavior in male domestic adoptees compared to non-adoptees.

Male adult adoptees at risk?

In our study, we found elevated risks of mental health problems in male domestic adoptees and an overrepresentation of anxious/depressed problems in the range of needing mental health care. In female domestic adoptees, we did not find these risks.

Could a response bias for male domestic adoptees be responsible for these elevated risks? By conducting a case record analysis on several background variables (including information from the birth parent(s)), separately for male and females, we could examine possible differential response bias. However, based on these background variables, no response bias for males was found.

The elevated risk in male adoptees, particularly for anxious/depressed problems, converges with outcomes from a Dutch study on international adult adoptees from Greece in which male (but not female) adoptees reported relatively high levels of depression (Storsbergen et al., 2010). Comparably, in a previous report on the Dutch international adoptee sample included in the current study, Tieman et al. (2005) found elevated levels of mood disorder, including depression, in male adoptees but not in female adoptees.

Several studies conducted outside the Netherlands have also reported rather optimal outcomes for female adult adoptees. For example, Rushton et al. (2013) found that female adult adoptees in their British Chinese Adoption Study did not differ from non-adopted female peers on mental health outcomes. Also, Collishaw et al. (1998) found no elevated rates of problems in female adult adoptees in the UK in several domains of functioning (including emotional problems and social support), whereas the outcomes for adopted men were less uniformly positive. Although the findings are not conclusive (for a lack of these gender differences see e.g. Cubito and Brandon, 2000; Sullivan et al., 1995), questions can be raised about possible explanations.
One could only speculate about possible differences in male and female adoptees in how they cope with their adoptive status during the life cycle, or possible differences in the use of social resources such as social support or close relationships. Important life events, such as starting or losing a romantic relationship or becoming a parent, may trigger memories and emotions of one’s own relinquishment and separation from the birth parents. Also, questions about genetic transmission of (unknown) medical and psychological problems to the next generation may raise stressful feelings in male and female adoptees. Gender differences in the buffering effect of social support in the relation between stress and the development of depression and anxiety problems have been discussed before (e.g. Dalgard et al., 2006; Rueger et al., 2010). Throughout the life cycle, women generally have more close friends than men. Also, women provide more emotional support to other people, and they get more help in return. Explanations for such differences typically focus on gender differences in emotional expressiveness. Women emphasize intimacy and self-disclosure in their friendships and are generally more empathetic, expressive, and disclosing than men.

Studies on risks and resilience in childhood have shown that, in general, males are more vulnerable to early adversity than females (Werner, 1993). Extending this literature to adoption, another possible explanation is that male adoptees may be more affected by the experiences of early deprivation or they may be less able to benefit from an improved adoptive environment than their female counterparts.

Finally, male and female adoptees may differ as to whether they are willing to engage in adoption research, and male adoptees with current problems may be more motivated to participate than female adoptees in comparable situations. More research is needed to unravel these processes, and studies should pay attention to gender differences in adoptees.

**Age at adoptive family placement and search status**

For domestic adoptees, age at adoptive family placement was related to anxious/depressed and withdrawn problems, whereas similar relations were not found for international adoptees (converging with previous reports of the latter sample; see Van der Vegt et al., 2009). Domestic adoptees placed for adoption at older ages reported more anxious/depressed and withdrawn problems than domestic adoptees placed at younger ages. Interestingly, the role of age at adoption seems to be different for domestic and international adoptions. Many studies have shown that the degree of pre-adoption adversity – including abuse, neglect, malnutrition – is more predictive of psychological and cognitive outcomes in international adoptees than age at adoptive placement (Juffer and Van IJzendoorn, 2005; Odenstad et al., 2008; Van der Vegt et al., 2009). Pre-adoption adversity is less likely to be severe in Dutch domestic adoptees, because their rearing environment before adoption is usually of a much higher standard compared to international adoptees who often reside in institutions with inadequate care before adoption. The cumulative effects of (severe) deprivation in institutional care combined with separations(s) and inadequate health care may (irrespective of age) leave their mark on international adoptees’ mental health. For domestic adoptions, a longer time between relinquishment and adoptive placement may indicate more transitions and separations contributing to less optimal outcomes, pointing to perhaps more subtle types of adversity.

As expected, search status differed between domestic and international adoptees; however, search status did not explain differences in mental health problems between the two samples. We found that non-searching domestic adoptees reported fewer anxious/depressed problems than searching or reunited adoptees. Other studies have also revealed more optimal outcomes for non-searching adoptees relative to searching or reunited adoptees (e.g. Borders et al., 2000; Cubito and Brandon, 2000; Storsbergen et al., 2010; Tieman et al., 2008). This may indicate that searching could be a marker for psychological distress or that the process of searching itself implies
emotional distress. Two studies found that searching was related to a more negative appraisal of adoption: evaluating adoption as having a negative effect on one’s life (Borders et al., 2000; Storsbergen et al., 2010). Storsbergen et al. (2010) showed that negative appraisal of adoption and not search status predicted mental health problems, and comparably, Rushton et al. (2013) found poorer mental health outcomes in adoptees with a negative view of their adoption.

Finally, it could be hypothesized that other (as yet unknown) factors influence the presence and timing of mental health problems in the domestic (male) adult adoptees, for example their genetic make-up. According to Loehlin et al. (2007), some adoptees join the adoptive family with some degree of genetic disadvantage, while the effects of these disadvantages only become visible over time. In the same vein, Van der Vegt et al. (2009) concluded that several effects of adversity in early childhood are ‘late’ effects, implying that negative consequences could appear de novo in adulthood.

**Limitations**

Our study is limited by the modest response rate of the domestic adoptees. To exclude the possibility of approaching adoptees who were not informed about their adoptive status, we could not recruit the adoptees directly, and this negatively affected the potential response rate. The relatively small sample size of our domestic adoptees sample, although comparable to other adult domestic adoptee studies (e.g. Borders et al., 2000; Rushton et al., 2013), might have restricted the power to detect important differences.

Although we conducted a non-response analysis including background variables, we cannot exclude the possibility of a (gender-specific) selective response bias, resulting in an underestimation or overestimation of the problems. Another limitation is that we did not have detailed information about the international adoptees’ early care before the adoption, as is unfortunately the case in most adoption studies. Also, the population of adoptees is diverse and has changed during recent decades (Selman, 2012), and this diversity limits the generalizability of individual studies, including this one. Finally, we had to rely on self-report measures, although this is not uncommon for the constructs measured in this study.

**Implications for clinical practice**

Since in the Netherlands adoption emerged from private initiative and is not part of the national child protection system, there is no separate service organization for adoption-related issues. In the case of mental health issues, adoptees have to rely on the regular mental health services. If specialized care is needed, either consultation or referral can be obtained through contact with the Dutch Foundation Adoption Services (www.adoption.nl). This center has a register of therapists and services (both private and government-funded) specializing in adoption-related care, both for children and adults.

The results of this study do fuel the ongoing debate in the Netherlands and abroad as to whether or not adoption calls for centralized, specialized mental health services that continue into adulthood or even throughout the life cycle.

**Conclusion**

The domestic adoptees in our sample showed somewhat less problem behavior than international adoptees. Compared to the non-adopted peers from the general population, we found elevated levels of mental health problems in male domestically adopted young adults, particularly in the
area of anxious/depression problems. It should be noted, however, that all differences were small, implying that most male adoptees were well adjusted. In female domestic adoptees, elevated risks were not found. When they work with male domestic adoptees, social workers and clinicians should be aware of possible problems of anxiety and depression and support the adoptee in coping with these emotions. It would also be interesting to know whether group support from fellow-adoptees (available in many countries) could be of any help in this respect.

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References


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