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Cross-informant ratings of internalizing and externalizing behavior
in adolescent-parent pairs

Does being adopted make a difference?

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Abstract

Low agreement between self report and parent report on the behavioral adjustment of adolescents has been widely documented in the literature. However, it has been little studied in connection with adoptees. In the current research, the magnitude of agreement between adolescents and their parents' reports of adolescents' behavioral problems and the direction of the possible discrepancies between these reports are studied. A comparison is made between adopted and non-adopted adolescent-parent dyads. The research questions are tested in a study with a sample size of 784 adolescent-parent pairs (309 adopted and 475 control adolescents) from Belgium, Romania, Chili, Switzerland, Italy, and the Netherlands. Because of an imbalance in the number of adopted and control adolescents per country, a more balanced dataset of 189 adoptees and 104 controls was used in the central analyses. Results showed that both the magnitude of agreement and the direction of the discrepancies in internalizing and externalizing behavioral ratings between informants, i.e. parents and their adolescent, does not depend on the adolescent's status, i.e. adopted or non-adopted. Compared to their parents, both adopted and control adolescents reported problems more frequently. Slight variations in the magnitude of agreement were found between countries. An interaction effect between gender and informant indicated that discrepancies for internalizing behavior were higher in parent-adolescent daughter than in parent-adolescent son pairs.

Keywords: informant discrepancy, informant agreement, informant bias, externalizing and internalizing problems, adolescence, adoption

1. Introduction

Low agreement between adolescents' self-reports and their parents' report on the adolescents' behavioral adjustment has been widely documented in the literature. Two meta-analyses by Achenbach et al. (1987) and Renk and Phares (2004) have situated the mean agreement at .20 to .25 among parent-child informants (T.M. Achenbach, Edelbrock, & Howell, 1987; Renk & Phares, 2004) and numerous subsequent studies have corroborated the discrepancies between these informants (De Los Reyes & Kazdin, 2005; Rescorla et al., 2013). It is generally assumed that none of the informants provides a "gold standard assessment" (Renk, 2005). Rather, each informant brings specific information, for example by interpreting similar behaviors in different ways or by giving a subjective interpretation of an ambiguous and complex reality. In particular, parents and adolescents could have their own way to delineate maladjustment in youth (Breland-Noble & Weller, 2012). A multi informant strategy for measuring adolescents' behavioral outcomes is therefore widely recommended (Berg-Nielsen, Vika, & Dahl, 2003; Roskam, Meunier, & Stievenart, 2013). Interestingly also, the discrepancies between adolescent-parent ratings have been shown to have clinical significance regarding psychopathology or family relationships (Breland-Noble & Weller, 2012; De Los Reyes & Kazdin, 2005; Ferdinand, van der Ende, & Verhulst, 2004; Treutler & Edpkins, 2003). For example, the presence of disagreement, regardless of its direction, in parent-youth dyad reporting on adolescent behaviors and emotions, has been found to affect the presence of depression in youth (Breland-Noble & Weller, 2012). Discrepancies between adolescents and parents have therefore been studied in particular among adolescents referred for mental health problems in comparison with controls.

These discrepancies have been little studied in connection with adoptees, although the latter are an interesting population because of possible informant biases. Firstly, adopting parents are known to pay greater attention to the symptoms of their adopted child, whom they

consider to be at greater risk than biological offspring (Juffer & van IJzendoorn, 2005; Warren, 1992; Weinberg, Waldman, van Dulmen, & Scarr, 2004). Second, it has been suggested that adoptees who have incurred affective deprivation early in life may be impaired in their conscious self-perceptions and therefore in the extent to which they admit or deny problematic behaviors (Fall, Roaten, & Eberts, 2012; Groze, 1992; Juffer & van IJzendoorn, 2007; Norvell & Guy, 1977). The possible hyper vigilance of the parents on the one hand and the adolescents' self-perceptions on the other could have an effect on the magnitude of agreement or the direction of the discrepancies within adopted adolescent-parent dyads. The aim of the current study is specifically to test the magnitude of agreement and the direction of the discrepancies within adopted adolescent-parent dyads compared to control dyads in sample data from six countries.

1.1 The magnitude of agreement within adolescent-parent dyads

Numerous empirical findings from different societies give support to a low to moderate agreement between parents' and adolescents' reports of their behavioral problems using the Achenbach System of Empirically Based Assessment (T.M. Achenbach & Rescorla, 2004; De Los Reyes & Kazdin, 2005; Rescorla et al., 2013).

With regard to studies in community samples, correlations of $r = .28$ to $.53$ for internalizing behavior and of $.25$ to $.53$ for externalizing behavior were found in two Dutch community samples of parent-adolescent dyads (Ferdinand et al., 2004; Van der Ende & Verhulst, 2005). The level of agreement was substantial among Algerian pairs, with Intra Class Correlations (ICCs) of $.59$ for internalizing behavior and $.55$ for externalizing behavior (Petot, Rescorla, & Petot, 2011). Among Anglo-Celtic and Chinese 10-to-13-year-old children in Australia, levels of agreement were lower, with ICCs of $.01$ to $.21$ for internalizing behavior and $-.04$ to $.33$ for externalizing behavior (Wong, Jenvey, & Lill, 2012). A mean association of $r = .31$ (range $-.09$ to $.56$) was found in African-American adolescent-parent

dyads (Breland-Noble & Weller, 2012). A comparable correlation of .37 was displayed for Turkish adolescent-mother pairs assessing emotion regulation difficulties (Saritaş & Gençöz, 2012). Recently, inter correlations from 25 countries have been published, with a mean r varying from .17 to .58 obtained by averaging the r for each of the internalizing behavior and externalizing behavior problem scales. (Rescorla et al., 2013).

Similar moderate associations have been found in adolescent-parent pairs in referred samples. For example, in a Norwegian sample of adolescents who had been clinically referred for emotional and behavioral disorders, correlation coefficients of .34 and .41 were reported between mothers' and adolescents' assessments of internalizing behavior and externalizing behavior (Berg-Nielsen et al., 2003). The same was true in two German studies, in which there were ICCs of .23 to .24 for internalizing behavior and .45 to .51 for externalizing behavior (Salbach-Andrae, Klinkowski, Lenz, & Lehmkuhl, 2009), and .39 for internalizing behavior and .60 for externalizing behavior (Salbach-Andrae, Lenz, & Lehmkuhl, 2009), respectively. A recent Spanish study confirmed low to moderate ICCs ranging from .29 to .41 for internalizing behavior syndrome scales and from .25 to .43 for externalizing behavior syndrome scales (Lacalle, Ezpeleta, & Doménech, 2012). Also in a Dutch sample, correlations ranged between .40 and .70 for internalizing behavior scales and between .58 to .67 for externalizing behavior ones (Ferdinand, van der Ende, & Verhulst, 2006). For American adolescents placed in out-of-home settings, the agreement was moderate among the adolescent-mother pairs, with $r = .34$ for internalizing behavior and .25 for externalizing behavior, but low among the adolescent-father pairs, with $r = .19$ for internalizing behavior and $r = -.16$ for externalizing behavior (Handwerk, Larzelere, Soper, & Friman, 1999).

Far less research has been conducted among adoptees. Self-reported and parent-reported problems of internationally adopted adolescents have been examined by Versluis-den

Bieman and Verhulst (1995). The aim of this study, however, was to estimate the prevalence of behavioral problems among adoptees rather than to focus on cross informant agreement.

In sum, the magnitude of agreement in adolescent-parent pairs is characterized by low to moderate coefficients, with slight variations according to the country under consideration and to the status of the adolescents, i.e. control or referred. Existing research does not allow us to predict the magnitude of agreement that will be found in adopted adolescent-adoptive parent dyads.

1.2 The direction of the discrepancies within adolescent-parent dyads

Typically, adolescents from community samples report higher levels of problems than their parents (Rescorla et al., 2007). This is the case across countries (Rescorla et al., 2013). For example, in an Australian study mean differences between parent and youth informants of Chinese and Anglo-Celtic samples were all positive and significant for both the internalizing behavior and externalizing behavior scales (Wong et al., 2012). Similar findings have been reported for Turkish adolescent-mother pairs with regard to emotion regulation problems (Saritaş & Gençöz, 2012), for Algerian adolescent-parent pairs for both internalizing behavior and externalizing behavior (Petot et al., 2011) and for Dutch adolescent-parent pairs (Van der Ende & Verhulst, 2005).

The contrary has been observed for referred adolescents. The discrepancy scores found in a Norwegian sample of clinically referred adolescents for both internalizing behavior and externalizing behavior suggested that the parent reported more behavioral problems than the adolescent him/herself (Berg-Nielsen et al., 2003). The same result was shown in two German studies where, on average, parents reported more problems than the adolescents (Salbach-Andrae, Klinkowski, et al., 2009; Salbach-Andrae, Lenz, et al., 2009) as well as in a Dutch study (Ferdinand et al., 2006). A similar observation was made for adolescents in out-of-home psychiatric settings in the United States: in this case, parents' reports of internalizing behavior

and externalizing behavior were significantly higher than adolescents' self-reports (Handwerk et al., 1999).

In sum, with regard to the direction of the discrepancies in adolescent-parent pairs, adolescents report more problems than their parents in community samples, but parents report more problems than adolescents in referred samples. As suggested, typically-developing adolescents may be less likely to share their concerns with their parents, who seem to some extent to be unaware of their adolescents' behavioral problems (Ferdinand et al., 2004). Conversely, parents who made the decision to refer their adolescent for behavioral concerns were likely to report more problems than their offspring. The interpretation of the direction of the discrepancies remains problematic, however, because of the absence of a real benchmark. Where parents report more behavioral problems than the adolescent, the adolescent may be denying these problems or the parents may be overestimating the problems. Where adolescents report more problems than their parents, the parents may be unaware of these problems or the adolescent may overestimate their own difficulties (Ferdinand et al., 2004).

Far less research is available with regard to the direction of the discrepancies between informants for adoptees. In a Dutch study considering self-reported and parent-reported problems of intercountry adopted and control adolescents, significant variations were displayed according to the informant in the percentages of adopted and non-adopted adolescents in the clinical range of behavioral problems (Versluis-den Bieman & Verhulst, 1995). According to self-reports, 22% of the adopted adolescent boys and 18% of the adopted girls showed behavior problems in the clinical range compared with 10% of the participants from the general population. According to parents' reports, the difference between the two groups, i.e. adoptees and controls, was slightly greater.

1.3 The current study

The magnitude of agreement between adolescent's self-reports and their parent's report on behavioral problems and the direction of the possible discrepancies is studied. The Achenbach System of Empirically Based Assessment (T.M. Achenbach & Rescorla, 2004) is used. Adopted adolescent-parent dyads from a community sample are studied and compared to non-adopted adolescent-parent dyads. The participants come from six countries.

For the magnitude of agreement, a moderate mean agreement between the two informants is expected, but with possible variations across the countries (Breland-Noble & Weller, 2012; Ferdinand et al., 2004; Petot et al., 2011; Saritaş & Gençöz, 2012; Van der Ende & Verhulst, 2005; Wong et al., 2012). Because of the lack of previous empirical studies considering adoptees, the magnitude of agreement in reporting of adopted adolescent-adopting parent pairs is explored and compared to that of control pairs.

For the direction of discrepancies, in line with previous research, control adolescents are expected to report higher behavioral problems than their mother (Petot et al., 2011; Rescorla et al., 2007; Saritaş & Gençöz, 2012; Van der Ende & Verhulst, 2005; Wong et al., 2012). However, we expect that for the adoptive adolescent-mother pairs this difference will be smaller.(Versluis-den Bieman & Verhulst, 1995).

These research questions and hypotheses are tested in a study with a maximum sample size of 784 adolescent-parent pairs (309 adopted and 475 control), and a balanced sample size of 293 adolescent-parent pairs (189 adopted, 104 controls), including Belgian, Romanian, Chilean, Swiss, Italian, and Dutch participants.

2. Method

2.1 Sample

This study is part of the Attachment in Adopted Adolescents Research Network (AAARN). Data were collected from 784 11-to-16-year-old adolescents and, predominantly, their mother; 309 of the adolescents were adopted and 475 were control participants. For the

current study the participants filled out a questionnaire that concerned the behavior of the adolescent.

Descriptive statistics for the two subsamples are displayed in Table 1.

Insert Table 1 about here

For adoptees, the inclusion criteria were that the children had been adopted before the age of seven years, i.e. had experienced a maximum of 84 months of early attachment deprivation, that they were aged 11 to 16 years, and that they knew they had been adopted. For 99 of the adoptive parents (valid percentage 34.9%), the parents had adopted a child for personal reasons other than infertility, while for 185 parents (valid percentage 65.1%) the adoption was due to infertility concerns. This information was missing for 25 families. The adopted children of Chili and Romania were domestic adoptees, all other adopted children were adopted internationally. Prior to their adoption, most children had lived in institutions that provided them with adequate physical resources but not consistent, responsive caregiving. The age of adoption, i.e. the number of months spent in the country of origin, ranged from 0 to 84 months ($M=11.85$, $SD=17.06$). The adolescents had been adopted in the Netherlands ($N=163$, 52.8%), Romania ($N=43$, 13.9%), Belgium ($N=39$, 12.6%), Chile ($N=24$, 7.8%), Italy ($N=24$, 7.8%) and Switzerland ($N=16$, 5.2%). The adopted adolescents came from 16 different countries such as Sri Lanka, Romania, and South Korea. Control participants were recruited in Switzerland ($N=414$), Belgium ($N=29$), Chile ($N=23$), and Italy ($N=9$).

2.2. Data collection procedure

In the Netherlands, the questionnaires on behavior problems were completed as part of a longitudinal adoption study in which internationally adopted children were followed from infancy to adolescence (Beijersbergen, Juffer, Bakermans-Kranenburg, & van IJzendoorn, 2012; Jaffari-Bimmel, Juffer, van IJzendoorn, Bakermans-Kranenburg, & Mooijaart, 2006). At the start of the study, adoptive families were randomly recruited through Dutch adoption

organizations. In adolescence, the adoptive families were visited at home to conduct assessments and interviews, and to administer questionnaires. Ethical guidelines were followed throughout the study and all participants gave informed consent prior to their inclusion in the study. At the time of the current study, adolescents from 190 families corresponded to the three criteria of inclusion. Of this group, 15 (7.9%) were not willing to participate or did not have suitable data for parents and adolescents (12; 6.3%) .

The Romanian data were collected with the collaboration of the governmental adoption service. Cooperation agreements were established with nine of the 47 Romanian counties. In each of the nine counties, the child protection system established prior contact with the families that had been selected on the basis of the three selection criteria as described above. All of the families contacted for the current research project agreed and were then contacted by the research team for a meeting that took place at home or at the child protection service.

Belgian questionnaires were completed by adoptive and control families from the French-speaking part of the country who were willing to participate. These families were informed about the research project by social networks or by word of mouth. All the families that voluntarily contacted the research team with a view to participating and that satisfied the inclusion criteria were included. Eight trained master's students visited the parents and adolescents at home in order to describe the study and give instructions on completing the questionnaires.

Chilean families that met the three criteria for inclusion were recruited from the registry of adoptions at three state agencies authorized to conduct adoptions in Chile: "SENAME" (National Youth Service), "Fundación Chilena para la Adopción" and "Fundación San José para la Adopción". Adoption agencies initially contacted 71 families to invite them to participate in the study. Thirty-seven families (52.1%) agreed to being

contacted by the research team. Of these, seven families finally decided to withdraw: three families did not want to stir up past issues, three adolescents refused to participate and one adolescent did not yet know he had been adopted. Six additional cases were excluded because they did not meet the inclusion criteria: one adolescent had incurred a developmental disorder, in four cases the adoption was late (after 84 months of age), and one adolescent was more than 16 years old. In the end, the Chilean sample consisted of 24 adoptive families (33.8%). The Chilean control group was specifically contacted in order to be able to match the two groups by socio-economic level, age, gender and educational level of the adolescent. Through social networks (Facebook groups, chain letters) the specific data needed to match the data with adopted adolescents (gender, age, educational level and socio-economic level) were published. The completion of the questionnaires was organized at home. The Ethics Committee of the School of Psychology of the Pontificia Universidad Católica de Chile approved the study. All participants gave signed informed consent. One participant had too many missing data on the questionnaire and was therefore deleted from the analyses.

The initial Swiss pool was the entire population of school-aged children and adolescents from a French-speaking Swiss town selected for its representativeness in terms of socio-economic distribution. Parents were contacted by post, the addresses being provided by the school board, who fully agreed with the procedure. Parents received a questionnaire (and parental consent form) and those who agreed to participate sent the questionnaire back by post. Adolescents received and filled in the questionnaire in their classrooms during school time. They were free to complete it or to note that they did not wish to participate. Parents and adolescents thus filled in the questionnaires independently of each other. When parents refused to participate, the corresponding adolescent's questionnaire was discarded. Forty-four percent of the parents returned the questionnaire. When questionnaires were not fully filled in, they were eliminated from the analysis; in the end, 414 valid mother reports and

corresponding self-reports (of 11-16 years old) could be included in the analysis. The responding sample globally reflected the Swiss population in general, as far as socio-economic status was concerned. Of the 414 adolescents, 16 were adopted. In contrast to adoptees from the other countries in the current study, they were not recruited because of their adopted status.

In Italy, data were collected in two different regions in the north of the country, Piedmont and Trentino. Adoptive families were recruited with the help of adoption services, which directly contacted the eligible families and asked if they were willing to participate. Once researchers had made contact with a family, informed consent forms were given to both parents and the adolescent before collecting data. Data collection was carried out at the Psychology Department or at home: in each family, both mother and father participated, even if they did not live together anymore. For the current study the questionnaire that was filled out by the mother was used. Generally, communication among family members was avoided while questionnaires were being completed. Trained graduate and postgraduate students collected the data. Among the contacted families, 14.3% refused to take part in Piedmont, while in Trentino all the families agreed to participate. Control families were recruited by personal contacts or school collaboration in Piedmont, and the procedure was the same utilised for the adoptive families. As for the adoptive families, we used the questionnaires filled out by mothers.

2.3. Instruments

The behavioral problems of the adolescents were assessed by the parent. In most of the cases the questionnaire was completed by the mother, but it cannot be excluded that the father was present or that they completed the form on their two. using The externalizing and internalizing scales of the Child Behavior Checklist (CBCL) covering ages 6-18 years have been used. The adolescents also completed the Youth Self-Report form (YSR), which can be

used for ages 11 and up (T.M. Achenbach & Rescorla, 2001; T.M. Achenbach & Rescorla, 2004). The several countries used different versions of the CBCL and YSR. Belgium, Italy and Romania used the 2001 version, and The Netherlands, Switzerland, and Chili the 1991 version. The externalizing behavior scale encompasses 33 and 34 items for the CBCL and 30 and 32 for the YSR, for the old and new version respectively. The internalizing behavior scale encompasses 31 and 32 items for the CBCL and 31 and 31 for the YSR, for the old and new version respectively. The response format is the following: 0=*not true*, 1=*somewhat true*, and 2=*very true*. In order to deal with differences in the number of items according to the version and the informant, the internalizing and externalizing scales were calculated based on overlapping items of the different versions (internalizing 30 items; externalizing 29 items) and averaged. A transformation was required since the mean scores were not distributed normally. A BoxCox syntax computed by the Statistical Methodology and Computing Service (SMCS) at the university of Louvain was used to determine the best transformation (common lambda exponent .45). Reliability was high in the different countries, with Cronbach's alphas ranging from .82 to .97 for the parents' reports and from .81 to .97 for the youths' self-reports. They ranged from .81 to .96 for internalizing and from .81 to .97 for externalizing behavior.

2.5. Data analysis

In order to address the imbalance of the sample sizes, we created a new balanced dataset in which 43 controls of Switzerland were included (instead of 414) and 43 adoptees of The Netherlands (instead of 163). For descriptive information see Table 1. All central analyses were done on this balanced dataset. As a preliminary step, bivariate correlations were computed in order to estimate the magnitude of agreement between parents and adolescents. These correlations were calculated separately for the different countries and for adoptive and control participants. Comparisons between coefficients were made using the Fisher *r*-to-*z* transformation to calculate a *z*-value that can be applied to assess the two-tailed significance

of the difference between two correlation coefficients, r_a and r_b , found in two independent samples. The main statistical analysis was a repeated-measures ANOVA with internalizing and externalizing behavior as outcome variables. In a first step we entered informant (self-report versus parent-report) as within-subjects factor for all countries, including country of adoption and gender as categorical covariates. In a second step we also modeled adoptive status (adoptivee versus control) as a between-subjects factor, but these analyses were only done for the countries that included a control group. Three or more-way interactions were excluded in order to keep results interpretable. When applicable, simple main effects analyses were done to inspect interaction-effects. Finally, we cross-checked our results on the total samples of Switzerland and the Netherlands.

3. Results

3.1 The magnitude of agreement between parents and adolescents

In order to assess the magnitude of agreement between parents and their adolescents, we calculated the correlations between the CBCL and the YSR. These correlations are reported separately for the different countries and for the adopted and non-adopted adolescent-parent pairs (See Table 2). With regard to internalizing behavior, no significant differences in magnitude of agreement were found between countries or between adopted and non-adopted pairs within countries. With regard to externalizing behavior, a significant difference was found for adopted adolescent-parent pairs between Switzerland and The Netherlands, $z = 2.03$, $p < .05$, and for control adolescent-parent pairs between Switzerland and Chili, $z = 2.51$, $p < .05$. A significant within-country difference was found for Chili: the magnitude of agreement between control adolescent-parent pairs and adopted-adolescent pairs differed significantly ($z = -2.48$, $p = .01$). The pooled results revealed a moderate level of agreement between adolescents and their parents. Overall, there was no significant difference in the pooled magnitude of agreement between adopted and non-adopted pairs on

internalizing (pooled results: $z = -0.69, p > .05$) nor on externalizing behavior (pooled results: $z = -1.04, p > .05$).

3.2 The direction of the discrepancies between adolescents and parents

The descriptive statistics for internalizing and externalizing behavior according to informant, gender and country are presented in Table 3.

Insert Table 3 about here

3.2.2 Effect of informant. In the first set of Repeated Measures ANOVAs we tested informant as a within-subjects factor and included gender and country of adoption as categorical covariates. For internalizing behavior, we found a significant interaction effect of informant and gender, $F(1, 286) = 14.07, p < .001, \eta_p^2 = .047$, as well as a significant main within-subjects effect of informant $F(1, 286) = 61.11, p < .001, \eta_p^2 = .176$, and a significant main between-subjects effect of gender $F(1, 286) = 4.97, p < .05, \eta_p^2 = .017$. These effects are represented in Figure 1.

Insert Figure 1 about here

The interaction between informant and gender indicated that adolescents reported more internalizing behavior problems than their parents and that this was especially the case for girls. In case of the YSR, girls reported more problems than boys. Country of adoption did not have a significant effect in this model. We therefore repeated the analysis without this covariate, and results were similar.

For externalizing behavior, we found a significant interaction effect between informant and country of adoption, $F(1, 286) = 8.04, p < .001$, as well as a main within-subjects effect of informant, $F(1, 286) = 88.17, p < .001$. Ratings for self-report were higher than mother-report, but this informant effect was not seen for Romania (simple main effect analysis: $p = .89$). The model also showed a significant main effect of gender $F(1, 286) =$

8.50, $p = .004$, $\eta_p^2 = .029$. Girls showed less externalizing problems than boys, and this effect was not different for self-report or mother report.

3.2.3. Effects of adoptive status. In the second set of RM-ANOVAs we added adoptive status as a between-subjects factor. The Netherlands and Romania were removed from the analyses because these countries did not include a control group.

For internalizing behavior, the interaction between, and main effects of informant and gender were still present. We found no significant main effect for adoptive status $F(1, 201) = 3.46$, $p = .064$, $\eta_p^2 = .017$, nor a significant interaction-effect between adoptive status and informant $F(1, 201) = 0.79$, $p = .397$, $\eta_p^2 = .004$.

For externalizing behavior, the main effects of informant and gender, and an interaction between country of adoption and informant were again present. However, no significant main effect for adoptive status $F(1, 201) = 2.36$, $p = .126$, $\eta_p^2 = .012$, nor a significant interaction-effect between adoptive status and informant $F(1, 201) = .06$, $p = .808$, $\eta_p^2 = .000$ was found.

3.2.4 Cross-check in complete samples. To assess whether the effect of informant was present in the complete samples of the Netherlands and Switzerland, we analyzed the mean differences between the YSR and the CBCL in these two complete databases. In both samples, internalizing self-report was higher than mother-report, and in both samples there was an interaction effect that showed that the informant effect was especially evident in girls. Both samples also showed a significant informant effect for externalizing behavior. Only The Netherlands revealed a significant interaction effect with gender in which the informant effect was only visible for girls.

Finally, because The Netherlands did not have a control group we compared the total Dutch adopted sample with a reference group (Verhulst, Ende, & Koot, 1997a, Verhulst, Ende, & Koot, 1997b). The available norm data were scale means and standard deviations and

therefore comparisons were made based on one sample z-tests. For mother report we found structural differences in mean scores between the norm group and the adopted group: adopted boys and girls scored higher on externalizing and internalizing problems, p -values ranged from .000 to .013. For self-report we found that adopted girls scored higher on externalizing than control girls ($p = .013$), and adopted boys scored lower on internalizing than controls ($p < .001$).

4. Discussion

The objective of the current study was to test the association between parent report and self-report of adolescents' problem behavior in a sample with adopted and non-adopted adolescents and their mothers. The main finding of this research was the absence of an adoptive status effect both for the magnitude of agreement and the direction of discrepancies between adolescents and their mother. As a main conclusion the current results suggest that what occurs in cross-informant rating of internalizing behavior and externalizing behavior is similar among adopted and control adolescent-mother dyads.

In particular, for the magnitude of agreement, we could confirm the hypothesis of low to moderate agreement between adolescents and their mother suggesting their subjective interpretation of an ambiguous and complex reality (Renk, 2005). Alongside this main result, we found variations in magnitude across countries as has also been reported in previous studies (Rescorla et al., 2013). However, these variations were limited to two inter-country comparisons, one between Switzerland and Chile for externalizing behavior in control pairs, and the other between Switzerland and The Netherlands for externalizing behavior in adopted pairs. This limited number of significant variations can be explained by the fact that five over the six participating countries were European and probably more similar than different in their cultural background. Possible interpretation for the difference in magnitude displayed between Swiss and Chile in control pairs relies on cultural values. Indeed, in comparison with

Switzerland, Chile is more catholic as well as it promotes familism (Schwartz, 2007). In a society where the family assumes a position of ascendance over individual interests, it is possible that the magnitude of agreement between the adolescents and their mother assessment of behavioral problems was higher than in a society where greater autonomy is promoted. However, the absence of difference between Chile and the other Western countries with similar individualistic orientation than Switzerland may challenge such interpretation. Chile was also the only country where a significant difference was found for externalizing behavior between control and adopted pairs with higher agreement in control ones. With regard to the significant difference between Switzerland and The Netherlands, cultural values seem to be unable to explain them. Hence, these countries are both based on the Western concepts of freedom, liberalism, pluralism, tolerance and secularization. The null correlation found for Switzerland might challenge us. It means that what the adopted adolescents report about their externalized problems is not associated at all to what their mothers report. Such a result seems to be particular in comparison with the five other countries. However, we should keep in mind that this correlation was only based on the balanced subsample of 16 Swiss dyads.

Regarding the direction of discrepancies, we could replicate the informant main effect for internalizing behavior and externalizing behavior that was previously found in community sample (Petot et al., 2011; Rescorla et al., 2013; Saritaş & Gençöz, 2012; Wong et al., 2012): adolescents reported more problems than their mother. The direction of the discrepancies between informants does not depend on whether adolescents are adopted or not. As in previous research conducted with community samples, adolescents reported higher rates of internalizing behavior and externalizing behavior than their parents. This is consistent with the view that adolescents could be less willing to share their concerns with their parents in a developmental period where they are trying to gain more autonomy. Their parents may

therefore be less aware of their behavioral problems. Different from previous results (Versluis-den Bieman & Verhulst, 1995), the direction of the discrepancy was the same in adopted adolescent-adoptive parent dyads as in controls. Adopted adolescents reported higher internalizing behavior and externalizing behavior than their parents. It may be due to the fact that the participants to the current study have been recruited on a voluntary basis in the community. They were therefore probably more similar than different from typically-developing adolescents. These results contradict the influence of specific informant biases among adoptees. In particular, they contradict the idea that adopting parents would pay greater attention to the symptoms of their adopted child whom they would consider to be at greater risk than biological offspring (Juffer & van IJzendoorn, 2005; Weinberg et al., 2004). They also question the assumption that adoptees would be impaired in their conscious self-perceptions and the extent to which they admit or deny their behavioral problems (Fall et al., 2012). Actually, it may be that informant biases have been at work at the moment of questionnaire completion, but the present study suggest that they were not specific to the population under consideration.

Alongside these main conclusions, an interaction effect between informant and gender has been reported for internalizing behavior which was seen to be more characteristics of girls. It showed that discrepancies were higher in adolescent daughter-mother than in adolescent son-mother pairs. Specific gender-related dynamics in mother-adolescent relationships could be responsible for this result. In particular, during adolescence, mother-daughter relationships can get especially conflicted over issues such as separation or differentiation (Collins & Russell, 1991; Russell & Saebel, 1997). In this context, the extent to which adolescent daughters would be willing to share their concerns with their mother may be more restricted compared to the sons (Collins & Russell, 1991; Russell & Saebel, 1997).

That could result in less open communication and greater distance between the mother's and the daughter's perspective.

Perhaps, is a gender related stress on intimacy (cultural determined) that produce in adolescent girls an overestimation of internalized problems in respect with more realistic evaluation of mothers?

For externalizing behavior, we found no interaction effect between gender and informant such as for internalizing behavior. We did find a main effect for gender that substantiates numerous previous studies (references here): girls scored lower on externalizing behavior than boys. Also, we found that for Romania no informant effect for externalizing behavior was present. It might be that domestically adopted adolescents from Romania are less inclined to admit their problems in this area than the adopted adolescents from other countries.

In sum, in a study with a good sized sample of adolescent-parent pairs from six countries, we showed that both the magnitude of agreement and the direction of the discrepancies in internalizing behavior and externalizing behavior ratings between informants, i.e. parents and their adolescent, does not depend on the adolescent's status, i.e. adopted or non-adopted typically-growing controls. Compared to their parents, both adopted and control adolescents reported problems more frequently. In the absence of a benchmark, it is however impossible to determine which one made the more realistic assessment, or indeed if any of the informants under consideration were able to report behavior problems realistically. Our results therefore stress the importance of multi informant strategy of adolescents' behavioral assessment both for adopted and control ones (Noordhof, Oldehinkel, Verhulst, & Ormel, 2008).

While important from both clinical and research perspectives, this study is by no means definitive. An important limitation relates to the data collection procedure used in each

country. In some countries, such as Switzerland, the questionnaires were filled in completely independently by mothers and adolescents, excluding any mutual influence. This was less the case when the questionnaires were filled in during home visits, as was done for participants from Belgium and the Netherlands, for example. Such variations in the procedure could be responsible for variations in the magnitude of agreement between parents and adolescents, which was seen to be the lowest in Switzerland. The current study therefore needs to be replicated in other countries with highly standardized data collection procedures. Another limitation is the recruitment procedure which considered adopted adolescents from a community sample only. In the future, the research questions should be tested among referred adoptees in order to study possible difference in the direction of the discrepancies. Finally, it cannot be excluded that a large part of the participants were self-selected, implicating that they may not be similar to typically developing adolescents resulting in a possible bias in some subsamples.

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Table 1

Descriptive statistics for the total and balanced sample of adopted adolescents and control participants

	Total sample		Balanced sample	
	Adoptees <i>n</i> = 309	Controls <i>n</i> = 475	Adoptees <i>n</i> = 189	Controls <i>n</i> = 104
Mean age (<i>SD</i>)	14.06 (1.53)	13.53 (1.48)	13.50 (1.68)	13.28 (1.66)
Gender	47.9% boys	51.4% boys	50.3%	55.8%
Mother's educational level (%)				
Primary school	13.6	6.9	8	1.9
Secondary school	29.5	48.3	33	31.7
Undergraduate school	30.8	18.7	30.3	27.9
Graduate school	22.5	24.2	22.9	29.8
Post-graduate school	3.6	1.9	5.9	8.7
Marital status (%)				
Parents living together	83.9	78.9	83	76.5
Parents separated	16.1	21.1	17	23.5

Table 2
*Correlations between parent report and self report for the balanced sample
 (adopted: n = 189; controls: n = 104) and the separate countries.*

	Internalizing		Externalizing	
	Adoptees n=189	Controls n=104	Adoptees	Controls
Balanced sample	.39**	.46**	.38**	.48**
Romania	.33*		.30*	
Belgium	.44**	.43*	.55**	.60**
Chile	.47*	.61**	.24	.77**
The Netherlands	.28**		.57**	
Italy	.52**	.63	.45*	.26
Switzerland	.27	.36*	-.00	.32**

* = ???

** = ???

May be the significance level in different countries is confounding, because it depends from the number of subject.

Table 3

Means for the balanced sample (adopted: n = 189; controls: n = 104) and the separate countries

		Internalizing				Externalizing			
		Adolescent		Parent		Adolescent		Parent	
		Adopted	Control	Adopted	Control	Adopted	Control	Adopted	Control
Pooled sample		.61 (.21)	.61 (.17)	.52 (.19)	.49 (.18)	.61 (.18)	.64 (.18)	.51 (.22)	.47 (.20)
Subsamples	The Netherlands	.54 (.20)	-	.47 (.20)	-	.62 (.18)	-	.51 (.25)	-
	Romania	.60 (.18)	-	.51 (.18)	-	.53 (.18)	-	.52 (.23)	-
	Belgium	.67 (.20)	.59 (.15)	.49 (.17)	.44 (.17)	.69 (.19)	.60 (.14)	.55 (.18)	.47 (.16)
	Chile	.59 (.20)	.59 (.17)	.52 (.22)	.48 (.23)	.58 (.18)	.59 (.22)	.52 (.25)	.51 (.26)
	Switzerland	.62 (.20)	.64 (.19)	.56 (.20)	.52 (.15)	.66 (.14)	.71 (.16)	.44 (.19)	.45 (.20)
	Italy	.65 (.26)	.54 (.09)	.60 (.21)	.49 (.14)	.61 (.19)	.53(.13)	.47 (.20)	.43 (.12)

May be it would be useful to maintain the same order among countries in order to better understanding the tables

Figure 1

Interaction effect of informant and gender for internalizing behavior

