



School adjustment of internationally adopted children in primary school: A mother and teacher approach



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ABSTRACT

The study examined school adjustment among 119 internationally adopted children in Norway. School adjustment included two main dimensions; school motivation and relationship in school. In the first part of the study, school adjustment was assessed by teachers among adopted and non-adopted children in first and third grade. In the second part, school adjustment assessed by mothers and teachers of adopted children were compared. The findings documented a significant decrease in school motivation from first to third grade among adopted children but not among non-adopted. Among non-adopted children there was a significant decrease in hyperactive behaviour which was not the case for adopted children. Although there were some differences in mothers' and teachers' assessments of adopted children, there was a significant decrease in their assessments of school motivation. The same decrease was not found for relationship in school.

Hyperactive behaviour and language skills interfere with school motivation both in mothers' and teachers' assessments. Adopted children with less hyperactive behavior and a good command of the Norwegian language, had better school motivation. These outcomes could indicate that internationally adopted children meet greater academic challenges at higher grade levels in school due to their language difficulties and hyperactive behavior.

1. Introduction

Norway has been engaged in international adoption since the end of the 1970s and today there are around 20 000 international adoptees in this country. The first children were adopted from South Korea and Vietnam, followed by Colombia (Selman, 2012). Adoption from China began in the early 1990s when China started its one-child policy which permitted each family to have only one child, and which resulted in an increased adoption rate from China. During the 1990s, children were also adopted from countries in Eastern Europe and from Russia (Selman, 2012).

Early research on international adoption has primarily focused on psychological outcomes (Hjern, Lindblad, & Vinnerljung, 2002; Juffer & van IJzendoorn, 2005; Rosnati, Montirossi, & Barni, 2008). In the last ten years, there has been a growing interest in academic achievement among adoptees as they have grown into adolescence and have to cope with higher educational demands (Dalen & Theie, 2019; Dalen et al., 2008; Helder, Mulder, & Gunnoe, 2014; Raleigh & Kao, 2013; van IJzendoorn, Juffer, & Klein Poelhuis, 2005; Vinnerljung et al., 2010).

Internationally adopted children are vulnerable to developmental delays. One main reason is the adverse preadoption conditions to which many of the adopted children have been exposed in their country of

origin (Johnson, 2000; Miller, Fan, Christensen, Grotevant, & van Dulmen, 2000; Rutter et al., 2010). A high percentage of these children have spent their first months or years in orphanages and similar institutions (Lin, Cemark, & Miller, 2005; Zeanah et al., 2005). It has been well documented that, in such institutions, children's development is not stimulated due to a lack of interpersonal contact with caregivers and understimulation of physical and cognitive activity in the early months (Gunnar, van Dulmen, & The International Project Team, 2007; Vorria et al., 2006). Consequently, international adoptees are vulnerable to delays in their psychological, social and cognitive development (Harwood, Feng, Yu, 2013; Juffer & van IJzendoorn, 2005; Rutter et al., 2010). Other studies have documented that developmental delays often interfere with academic achievement and motivation (Dalen, 2012; Dalen & Theie, 2019; Raleigh & Kao, 2013; Raaska, Elovainio, Sinkkonen, Matomäki, & Lapinleimu, 2011; Raaska et al., 2013); van IJzendoorn, Juffer, & Klein Poelhuis, 2005).

The aim of the present study is to examine school adjustment among internationally adopted children in early primary school based on their mothers' and teachers' assessments. Many studies have documented a higher frequency of hyperactive behavior among internationally adopted children (Dalen, 1995, 2001; Dalen & Theie, 2019; Juffer & van IJzendoorn, 2005; Kvifte-Andresen, 1992; Lindblad, Dalen, Rasmussen,

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Vinnerljung, & Hjern, 2009; McGuinness & Pallansch, 2000; Rutter et al., 2009), and some studies have documented that this kind of behavior impacts negatively on academic achievement (Dalen, 2012; Dalen & Theie, 2019; McGuinness & Pallansch, 2000; Merz, McCall, & Wright, 2013).

In addition, language mastery appears to be a risk factor for delay in learning and school achievement among internationally adopted children (Dalen, 2012; Raaska et al., 2013; Rygvold, 1999). The language acquisition of these children is unique since it is neither bilingual nor monolingual. The children experience a sudden interruption to their first language and have to develop a new language, their second first language (De Geer, 1992), usually with little or no exposure to their first language. Most adopted children have rapid acquisition of their second first language and catch up with their non-adopted peers. Rygvold and Theie (2016) found in their study that during their first years in Norway, most internationally adopted children had language development similar to that of a non-adopted control group. However, studies of language acquisition display inconsistent findings (Hwa-Froelich & Matsou, 2010). Internationally adopted children are vulnerable to developing language problems (Cohen, Lojkasek, Zadeh, Pugliese, & Kiefer, 2008; Jacobs, Miller, & Tirella, 2010), in particular language and reading comprehension appear to be a challenge (Rygvold & Theie, 2016). Adopted children have a “higher likelihood for language difficulties when compared with their non-adopted peer” according to a meta-analysis (Scott, Roberts, & Glennen, 2011: p. 1154). Long stays in an orphanage, poor preadoption conditions (Glennen, 2007), older age at adoption, health factors (Raaska et al., 2013; Tirella, Chan, & Miller, 2006) and changing language are factors that are linked to poorer language proficiency.

In the present study, assessment of school adjustment was made by the adopted child’s mother and main teacher in first and third grade. Since the study includes two informant groups, an additional aim was to compare the mother’s and teacher’s assessments. Most of the studies focusing on behavior problems among adoptees have usually been based on the adoptive mothers’ reports while teachers have been the main informant on academic achievement (Juffer & van IJzendoorn, 2005; Dalen, 2012; Dalen & Theie, 2019). Research has shown that the perception of any informant is often biased (Richardson & Day, 2000). Correlation between informants who personally interact with the child (mother/father) is often higher than between informants who interact with the child in different settings (mother/teacher). This would explain the moderate correlations between the ratings of different informants (van der Ende & Verhulst, 2005; Rosnati, Barni, & Montiroso, 2010; Tan & Camras, 2011). On the other hand, significant correlation between parent and teacher ratings could also document that children’s behavior has considerable cross-situation continuity (Tan & Camras, 2011). Rosnati et al. (2010) argue for a need to use more multi-informant approaches in assessments of adopted children. The present study contributes to more knowledge in this field by using both mother and teacher in the assessment of school adjustment.

The study also includes a comparison group of non-adopted classmates in the first and third grade. This enables comparison of the school adjustment of adopted and non-adopted children assessed by their teachers in the first and third grade. The group of adopted children was the same in first and third grade whereas the group of non-adopted children changed. This has naturally affected the statistical analysis used in the study. The first aim of the study was to examine differences in the teachers’ assessments of internationally adopted children and non-adopted children in early school years. The second aim was to compare the teachers’ and mothers’ assessments of internationally adopted children in first and third grade. The specific research questions were:

Are there differences between internationally adopted and non-adopted children’s school adjustment from first to third grade as assessed by their teachers?

Are there differences between internationally adopted children’s school adjustment from first to third grade as assessed by their mothers and teachers?

To what extent do language skills and hyperactive behavior explain differences in school adjustment among internationally adopted children in first and third grade assessed by their mothers and teachers?

2. Methods

The present study is part of a longitudinal study of internationally adopted children in Norway (Dalen & Theie, 2012, 2014, 2015, 2019; Melaas, Kvello, & Dalen, 2014). In this presentation the focus is on school adjustment in primary school.

2.1. Participants

Adopted children. The sample was drawn from children adopted internationally to mothers living in the Eastern part of Norway during the period 2006–2009. Additional inclusion criteria included adoption before the age of two years. With a response rate of 66.9%, the sample consisted of 119 of the population of 178 children who fulfilled the inclusion criteria (52.1% girls and 47.9% boys). All children were adopted before the age of 24 months; however, half of them were placed before 12 months of age. None of the children had stated special needs at arrival. The children were adopted from China (35.3%), South Korea (19.3%), South Africa (14.3%), Colombia (11.8%), and Ethiopia (10.9%). A small percentage (8.4%) was adopted from India, the Philippines, Peru, and Thailand. However, country of origin was not used as a predictor variable because the number of children in the different country groups was too small and it was difficult to group countries within a larger continent (e.g. countries from Africa – Ethiopia and South Africa) due to the diverse conditions surrounding adoption in the countries of origin.

Non-adopted children. The comparison group of non-adopted children consists of classmates in first and third grade. The non-adopted child should have the same gender and be born in the same year and month as the adopted target child. The group of adopted children was the same in first and third grade whereas the group of non-adopted children changed. The two groups of children participating in the study were randomized based on two criteria; gender and age.

Mothers. The information from parents is based only on information from the adopted children’s mothers. In first grade, 112 of 119 mothers participated while 113 mothers participated in third grade. This gives a response rate of 94.1% in first grade and 95.0% in third grade.

Teachers. In first grade, 95 of 119 teachers participated while 98 teachers participated in third grade. This gives a response rate of 79.8% in first grade and 82.4% in third grade. For the comparison group, 90 teachers participated in first grade and 93 teachers in third grade.

2.2. Procedures

Each adopted child’s mother answered a questionnaire focusing on school adjustment in the last semester of first and third grade. At the same time, a similar questionnaire was sent to each adopted child’s main teacher. Almost all the adopted children (N = 83) had the same main teacher in first and third grade. The questionnaire for both mothers and teachers covered school motivation, relationships in school, language skills and behavior problems. In addition, some questions focused on the need for special needs and support from mothers. The teachers were also asked to assess a non-adopted classmate of the same gender and age as the adopted target child (see description of participants).

2.3. Measures

2.3.1. School adjustment

School adjustment was measured using two scales; one measuring *school motivation* and one measuring *relationships in school* (Dalen & Theie, 2019). The scale measuring school motivation consisted of rating three items: academic achievement, homework completion, and motivation for doing schoolwork. The scores ranged from 1 (low) to 4 (high). The scale had high internal consistency (Mothers: first grade $\alpha = 0.82$, third grade $\alpha = 0.83$; Teachers: first grade $\alpha = 0.88$, third grade $\alpha = 0.86$). The scale measuring relationships in school consisted of rating three relationship items: the child's relationship with classmates, main teacher, and teachers in general. The scores ranged from 1 (low) to 4 (high). The scale had moderate to high internal consistency (Mothers: first grade $\alpha = 0.77$, third grade $\alpha = 0.81$; Teachers: first grade $\alpha = 0.70$, third grade $\alpha = 0.86$). Both the scales measuring school motivation and relationships in school had relatively high alpha values especially in third grade, even though they consisted of few items (Field, 2013).

2.3.2. Language skills

Language skills were assessed with a Norwegian-based test, "20 questions about language skills" (Ottem, 2009). Each item was scored on a scale from 1 (good performance) to 5 (low performance). The lowest possible score for the whole scale was 20, and the highest was 100. A score above 31 indicates that the child should be recommended for further special needs assessment or services (Ottem, 2009).

A Norwegian screening test (Language 6–16) was used to validate 20 Questions. The sample for comparing data from these two observations included 93 children with a normal language development and 98 children with different kinds of language disorders. There was a strong correlation between scores on 20 Questions and Language 6–16. There was also a strong correlation between teacher's assessment of linguistic competence and scores on these tests (Ottem, 2009:17)

2.3.3. Behavior problems

Behavior problems were assessed using different instruments for mothers and teachers. For mothers, for both the first and third grade, two of the Child Behavior Checklist (CBCL) subscales were used: internalized behavior (21 items) and attention seeking behavior (10 items) (Achenbach & Rescorla, 2001). The internalized subscale included items such as *cries a lot, fearful, anxious, worries, must be perfect, feels worthless*. The subscale assessing attention seeking behavior included items such as *acts young, fails to finish, can't concentrate, can't sit still, confused, impulsive, and inattentive*. Each item was categorized from 0 (not at all), 1 (sometimes) to 2 (very often). The subscales used for mothers had high internal consistency (internalized behavior: first grade $\alpha = 0.90$, third grade $\alpha = 0.85$; attention seeking behavior: first grade $\alpha = 0.88$, third grade $\alpha = 0.81$). CBCL is a well-established test and has been standardized in Norway in 2012 (Kornør & Jozefiak, 2012).

For teachers, these problems were assessed in both first and third grade using an instrument based on Gresham & Elliott's Social Skills Rating System (SSRS) (Gresham & Elliott, 1990). Two subscales were used in this study: internalized behavior (6 items) and hyperactivity (6 items). The internalized scale included items such as *lacking confidence, seems lonely, is anxious, is easily embarrassed, likes to be by his/herself, and is sad and depressed*. The scale measuring hyperactivity includes items such as *gets easily distracted, breaks into other people's conversations, interferes with ongoing activities, does not listen to what others say, acts impulsively, is restless and always moving around*. Each item was categorized as (1) never, (2) sometimes, (3) often, or (4) very often. The subscales for teachers had relatively high internal consistency (internalized behavior: first grade $\alpha = 0.72$, third grade $\alpha = 0.80$; hyperactivity: first grade $\alpha = 0.84$, third grade $\alpha = 0.90$). The teacher scales are standardised in USA (Gresham & Elliott, 1990), and translated into

Norwegian. They have shown to have good validity and reliability in many studies in Norway (e.g. Sørli & Ogden, 2015). These subscales from the CBCL and Gresham & Elliott's measure were chosen because they represent large variation in internalizing and attention seeking/hyperactive behavior.

The subscales also included items with quite similar descriptions of the child's behavior. The present study is part of a longitudinal study based on the mothers' assessment of the child's behavior from the time of adoption and up to the age of four. In every assessment, CBCL was included. It was natural to continue to include this instrument for mothers when the adopted child started in school. At this time teacher assessment were included, and Gresham & Elliott's scale was chosen because of previous good experience with this scale from other studies (Dalen, 2001; Dalen & Rygvold, 2006; Dalen & Theie, 2019). When the mothers' and teachers' assessments are described the scales are named "attention seeking/ hyperactive behavior". When only the teachers' assessments are presented, the term "hyperactive behavior" is used.

2.4. Statistical analysis

2.4.1. Descriptive statistics

Descriptive statistics are presented by number of participants, mean and standard deviation for all scales. Internal consistency was measured using Cronbach's α . Most of the scales included in the mothers' and teachers' assessments had α above 0.80 and 0.90. The lowest α (state the alpha statistic) was measured for relationships in school by the mothers and teachers in first grade.

2.4.2. Independent sample t-tests

The differences between adopted and non-adopted children were tested using independent sample t-tests both in first and third grade.

2.4.3. Paired sample t-tests

Score differences for all scales administered to mothers of adopted children from first to third grade were measured using paired sample t-test. Since so few of the adopted children ($N = 12$) had a new teacher in third grade, the same procedure was performed for their teachers. All analyses were checked for gender differences and interaction effects. Age of adoption was not included in the analyses since the groups were quite homogenous. The children had, as stated above, an adoption age younger than two years and half of them were younger than one year. Country of origin was (as explained in the introduction) also not included in the analyses since the number of children from some countries was too small, and there was no good justification for grouping the different countries.

2.4.4. Correlations between variables included in the study

Correlation analyses between dependent and independent variables were performed for adopted children to secure a minimum of correlation between variables; preliminary analyses were conducted to ensure that the variables were normally distributed and to avoid homoscedasticity and multicollinearity. Correlation analyses were also performed for mothers and teachers in first and third grade.

2.4.5. Multiple regressions analyses

Linear multiple regression analyses were performed to identify the variables that explain the variance in the mothers' and teachers' assessments of the adopted children. The dependent variables were school motivation and relationships in school, and the independent variables were internalizing behavior, attention problems/hyperactivity and language skills.

Table 1
Teachers' assessments of adopted and non-adopted children from first to third grade.

	First grade			Third grade			First grade			Third grade			t	sig		
	Adopted			Adopted			Non-adopted			Non-adopted						
	M	SD	N	M	SD	N	M	SD	N	M	SD	N				
Internalized behavior ³	8.39	2.10	93	8.56	2.47	97	-0.512	0.609	8.44	1.97	89	8.25	2.27	92	0.602	0.548
Hyperactive behavior ³	9.83	3.39	94	9.71	4.08	96	0.221	0.826	9.62	3.51	90	8.43	2.66	92	2.574	0.011
Language skills ¹	29.73	14.63	95	30.44	13.03	97	-0.355	0.723	26.02	8.15	8	27.33	12.00	93	-0.858	0.392
School motivation ²	9.26	2.82	92	8.49	2.25	94	2.056	0.041	9.35	2.10	88	9.03	1.98	92	1.051	0.295
Relationship in school ²	9.81	1.38	93	9.83	1.80	98	-0.086	0.931	9.92	1.63	89	10.13	1.53	91	-0.891	0.374

. *p < .05, **p < .01, and ***p < .001
¹ Lower score indicate better performance.
² Higher score indicate better performance.
³ Higher score indicate higher frequency.

3. Results

3.1. Descriptive statistics

The differences in teachers' assessments of adopted and non-adopted children from the first to third grade are presented in Table 1 including number, mean, standard deviation, and t-values.

There were significant differences in the teachers' assessment from first to third grade both among adopted and non-adopted children. The adopted children were scored significantly lower on the scale measuring school motivation than non-adopted children. The non-adopted group was scored significantly lower than the adopted group on the scale measuring hyperactivity in third grade compared to first grade.

The differences in the mothers' and teachers' assessments of adopted children from first to third grade are presented in Table 2.

There were significant differences in the mothers' assessment of internalized and attention seeking/hyperactive behavior. There was a significant decrease in both areas from first to third grade. The mothers also assessed language skills to be significantly improved from first to third grade. However, there was a decrease in school motivation from first to third grade. The mothers evaluated their children as less academically motivated in third grade compared to first grade.

The teachers had a different assessment pattern. In their assessments there were no significant decreases in the scores measuring internalized and attention seeking/hyperactive behavior. The only significant change was seen with the adopted children's school motivation. The teachers' assessment, like the mothers', showed a decrease in academic motivation from first to third grade.

3.2. Correlations between variables included in the study

Table 3 provides an overview of the correlations between all the variables included in the study, both for the mothers and teachers of adopted children.

The picture was quite similar for the two groups, especially in third grade. It is interesting to note that in third grade the correlations

between relationships in school and variables measuring internalized behavior and language skills were higher for teachers than for mothers.

The correlations between the mother's and teacher's assessments of adopted children in first and third grade are presented in Table 4.

In line with Cohen's classification criteria, these correlations indicate a moderate positive correlation for almost all variables (Cohen, 1988). This applies in particular for school motivation both in first grade (0.474, p < .001) and third grade (0.591, p < .001), and for attention seeking/hyperactivity behavior in third grade (0.465, p < .001). The two scales from CBCL (internalized behavior and attention seeking behavior) and the two scales from Gresham & Elliott (internalized behavior and hyperactivity) included items with quite similar descriptions of the child's behavior. The scales measuring internalized behavior assessed by mothers and teachers in first grade correlated significantly both in first grade (r = 0.239, p < .05) and third grade (r = 0.243, p < .05). Moreover, the scales measuring attention seeking behavior/hyperactivity correlated significantly both in first and particularly in third grade (first grade, r = 0.207, p < .05, third grade, r = 0.465, p < .001).

3.3. Multiple regressions analyses

The results from the regression analyses for the mothers and teachers for adopted

children in first and third grade are presented in Tables 5 and 6. The results on school motivation are presented first.

Mothers: Attention seeking gave a large negative contribution in explaining the variance in mothers' assessments both in first and third grade. It is interesting to note that internalized behavior gave a positive contribution in first grade, but not in third grade. In addition, language skills contributed significantly and positively in explaining the variance in school motivation in third grade.

Teachers: In first and third grade, hyperactivity and language skills gave a significant negative contribution in explaining the variance in school motivation. The pattern was similar in third grade.

Mothers' and teachers' assessments, both in first and third grade,

Table 2
Mothers' and Teachers' assessments of internationally adopted children from first to third grade.

	Mothers						Teachers						t	sig		
	First grade			Third grade			First grade			Third grade						
	N	M	SD	N	M	SD	N	M	SD	N	M	SD				
Internalized	105	6.22	7.90	105	3.30	4.09	3.687	0.000	83	8.33	2.09	83	8.54	2.39	-0.802	-0.424
Attention seeking/ Hyperactivity	107	4.35	4.51	107	2.53	3.03	4.722	0.000	83	9.15	3.24	83	9.51	4.20	0.279	0.781
Language skills	105	27.63	13.14	105	29.64	11.60	3.433	0.001	85	28.64	13.14	85	29.47	12.05	-0.525	-0.601
School motivation	104	9.13	2.01	104	8.65	2.11	2.615	0.010	80	9.44	2.15	80	9.44	2.20	3.642	0.000
Relationship in school	105	10.48	1.36	105	10.52	1.55	-0.317	0.752	85	9.82	1.39	85	9.86	1.72	-0.164	0.870

Table 3
Correlations between dependent and independent variables in mothers' and teachers' assessments in first and third grade.

	Mothers				Teachers			
	2	3	4	5	2	3	4	5
1. Internalizing	0.807***	0.246*	-0.133	-0.044	0.306**	0.277**	-0.159	-0.343***
2. Attentions		0.418***	-0.346***	-0.094	0.639***	-0.611***	-0.374***	0.418***
3. Language			-0.347***	0.011	-0.598***	-0.267***		
4. School motivation				0.339***	0.439***			
5. Relationship in school								

Table 4
Correlations between mothers' and teachers' assessments in first and third grade.

	First grade r ²	Third grade r ²
Internalizing	0.239*	0.243**
Attention seeking/Hyperactiv.	0.207*	0.465***
Language skills	0.224*	0.361***
School motivation	0.474***	0.591***
Relationship in school	0.338***	0.438***

identified attention seeking/hyperactive behavior as contributing negatively to explaining variance in school motivation. In addition, language skills gave a positive contribution, especially in third grade.

Table 6 presents the results from the regression analyses for adopted children on relationships in school.

Mothers: In first grade, none of the included variables provided a significant contribution in explaining the variance in the mothers' assessments. This picture changed in third grade where both internalized and attention seeking provided significant negative contributions.

Teachers: In first grade, both internalized and hyperactive behavior provided significant negative contributions in explaining the variance in relationships in school. Additionally, in third grade, language skills gave a significant positive contribution in explaining the variance in school relationships.

4. Discussion

Although internationally adopted children comprise a group of children at risk, the adopted children included in the present study represent a moderate risk group with no children having an adoption age above two years, stated special needs or being adopted from

countries providing a preadoption environment of very low quality (often countries in Eastern Europe and Russia). These factors need to be taken into consideration when discussing the outcomes of the study. The variation in the present sample is probably smaller than in many other studies.

Part of the study included a comparison group of non-adopted children. This group consisted of classmates in first and third grade and only the results of the teachers' assessments based on mean values are included in the presentation. Our first research question was related to differences in teachers' assessments between adopted and non-adopted children from first to third grade. The results showed that assessment of the two groups was quite similar except for school motivation and hyperactive behavior. Adopted children had a significant decrease in school motivation from first to third grade in contrast to non-adopted children for whom it stayed the same. Non-adopted children had a significant decrease in hyperactive behavior from first to third grade while adopted children had the same frequency of this type of behavior in both grades.

In other parts of the study, two groups of informants, mothers and teachers, were included only for the adopted group. The second and third research questions concerned only adopted children. The study had a special focus on two dimensions of school adjustment: *school motivation* and *relationships in school*. Doing well academically in school and having good relationships with classmates and teachers are important for further educational attainment (Dalen et al., 2008; Lindblad et al., 2009; Tan, 2009; Vinnerljung et al., 2010). Although these two areas are correlated positively both in the mothers' and teachers' assessments, the two informant groups' patterns differed in a number of ways. The mothers' assessments showed a significant decrease in internalized and attention seeking/hyperactive behavior from first to third grade. This trend was not reflected in the teachers' assessments. These differences, especially in attention seeking/hyperactive behavior, could be explained by the informants' contextual situation. Mothers

Table 5
School motivation regression analyses: mothers' and teachers' assessments in first and third grade.

	Mothers				Teachers			
	First grade		Third grade		First grade		Third grade	
	Beta	Sig	Beta	Sig	Beta	Sig	Beta	Sig
Internalized behavior	0.307	0.035	0.064	0.398	-0.072	0.398	-0.112	0.194
Attention/Hyperactivity	-0.566	0.000	-0.417	0.000	-0.466	0.000	-0.463	0.000
Language	0.180	0.076	-0.350	0.000	-0.359	0.000	-0.264	0.006
	R ² = 0.236		R ² = 0.458		R ² = 0.530		R ² = 0.474	
	F(3,95) = 9.779***		F(3,108) = 29.561***		F(3,88) = 31.915***		F(3,91) = 26.406***	

Table 6
School relationship. regression analyses: mothers' and teachers' assessments in first and third grade.

	Mothers				Teachers			
	First grade		Third grade		First grade		Third grade	
	Beta	Sig	Beta	Sig	Beta	Sig	Beta	Sig
Internalized behavior	0.114	0.493	0.252	0.007	-0.482	0.000	-0.235	0.019
Attention/Hyperactivity	-0.158	0.347	-0.288	0.014	-0.276	0.004	-0.231	0.021
Language	0.021	0.853	-0.014	0.901	-0.040	0.702	-0.293	0.026
	R ² = 0.009		R ² = 0.198		R ² = 0.375		R ² = 0.296	
	F(4,93) = 984		F(3,106) = 8.713***		F(3,89) = 17.201***		F(3,92) = 12.906***	

were observing the children at home while teachers scored the rating in a school environment. In a home context, mothers might not consider attention problems/hyperactive behavior as troublesome. However, in a school environment this type of behavior might affect the teaching practice in various ways. In a school situation, children must follow certain rules and expectations. Furthermore, the teachers observe the children within a peer group. This may help them to distinguish between behavior problems and normative behavior at specific age levels. It is an interesting finding that both in the mothers' and particularly in the teachers' assessments, there was a significant decrease in school motivation from first to third grade.

The third research question was to examine to what extent language skills and hyperactive behavior interfere with school motivation and relationships in school among adopted children. The results documented different patterns for the two areas of school adjustment. With regard to school motivation, the patterns were quite similar for mothers and teachers, especially in third grade. Attention seeking/hyperactive behavior contributed significantly and negatively to the variance in school motivation. Conversely, good language skills gave a significant positive contribution. Adopted children with a low degree of attention seeking/hyperactive behavior and a good command of the Norwegian language, had higher school motivation in third grade.

It is interesting to note that both mothers and teachers reported a significant decrease in school motivation from first to third grade. This was not found in the teachers' assessments of non-adopted classmates. This trend should be taken seriously and could be a signal of negative reaction to higher cognitive and psychological challenges at higher grade levels. Outcomes from other studies have documented that internationally adopted children are vulnerable to developing learning problems due to undetected language problems and to increasing hyperactive behavior problems (Dalen, 2001; Dalen & Rygvold, 2006; Dalen & Theie, 2019; Raleigh & Kao, 2013; Lindblad et al., 2009; Rygvold & Theie, 2016).

Regarding relationships in school, there were no significant changes in the mothers' and teachers' assessments of the adopted children's relationships from first to third grade. The regression analyses gave a different picture for relationships in school than for school motivation. In first grade, none of the dependent variables gave a significant contribution in explaining the variance in mothers' assessments. However, in the teachers' assessments, both internalized and attention problems/hyperactive behavior gave a significant negative contribution. These differences could once more be explained by the context in which the two informant groups conducted the assessment. The mothers had to rate the behavior in a school context they did not participate in, while the teachers observe the children directly in the school environment. In third grade, the picture had changed. Internalized and attention seeking/hyperactive behavior gave significant negative contributions in explaining the variance for both mother and teachers. It is interesting to note a difference in the mothers' and teachers' assessments of language skills. In first grade, language gave a significant positive contribution in explaining the variance in relationships for mothers but not for teachers. In third grade, the picture had changed. Now, language gave a

significant positive contribution in the teachers' assessments but not in the mothers' assessments. One must keep in mind the different contexts of home and school in which both language and behavior was assessed by the mothers and teachers.

5. Limitations

There are some limitations to the present study. The sample of adopted children is a "low or moderate risk" sample with no children adopted from countries in Eastern Europe and Russia. These countries are characterized by preadoption conditions of very low quality. In addition, all the children had an age at adoption of younger than two years, and half of them were younger than one year. Furthermore, none of the children had stated special needs of any kind when they were adopted. One should therefore be careful to generalize the results from the present study to internationally adopted children in general.

All the information regarding the adopted children was based on questionnaires answered by the mothers and teachers. The validity would have been strengthened if information had also been included from clinical assessments and observations. Geographic and economic reasons made it impossible to use such approaches.

There are also some statistical limitations regarding the choice of only two dimensions of problem behavior which were assessed differently for the two informant groups. The mothers' assessments were based on two scales from CBCL: internalized and attention seeking behavior. The teachers' assessments were based on two scales from Gresham & Elliott's scale measuring internalized behavior and hyperactivity. The scores on these scales from the mothers and teachers gave moderate correlation. These scales, from the CBCL and Gresham & Elliott scale, were chosen because they represent variations in problem behavior ranging from internalized to externalized behavior. The scales measuring school motivation and relationships in school included only three items each. Although the internal consistency of each of these scales was high, using these scales in the analyses certainly poses some statistical limitations.

Although the percentage of children who had a new teacher in third grade was low (10%), inclusion of these children in the analysis is a limitation. Some of the new teachers in third grade could have been more or less rigorous in their assessments.

Finally, the sample of internationally adopted children is quite small which limits the statistical analyses performed and presented.

5.1. Conclusions

The outcomes from this longitudinal study indicate that internationally adopted children have additional educational challenges in third grade compared to first grade and compared to a comparison group of non-adopted classmates. It is important to continually screen the language development of internationally adopted children because research has documented that this group of children is vulnerable to developing language problems even at an age when they would be expected to have a good command of the second first language (Tirella

et al., 2006). These problems have been related in particular to language and reading comprehension, which are important skills for managing academic performance (Rygvoold & Theie, 2016). There is a need for educational programs both in kindergarten and schools for stimulating these children's language competence.

In conclusion, there is a need for more longitudinal studies that follow internationally adopted children at higher grade levels to see how they are performing academically.

Declaration of Competing Interest

None of the three authors have any interest to declare.

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References

- Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for the ASEBA School-Age Forms & profiles*. Burlington, VT: University of Vermont, Department of Psychiatry.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence: Erlbaum Associates.
- Cohen, N. J., Lojkasek, M., Zadeh, Z. Y., Pugliese, M., & Kiefer, H. (2008). Children adopted from China: A prospective study of their growth and development. *Journal of Child Psychology and Psychiatry*, 49, 458–468.
- Dalen, M. (1995). Learning difficulties among inter-country adopted children. *Nordisk Pedagogik*, 15(4), 195–208.
- Dalen, M. (2001). School performances among internationally adopted children in Norway. *Adoption Quarterly*, 5(2), 39–58.
- Dalen, M. (2012). Cognitive competence, academic achievement, and educational attainment among intercountry adoptees: Research outcomes from the Nordic countries. In J. L. Gibbons, & K. S. Rotabi (Eds.), *Intercountry adoption. Policies, practices, and outcomes* (pp. 187–199). New York: Ashgate.
- Dalen, M., Lindblad, F., Odenstad, A., Rasmussen, F., Vinnerljung, B., & Hjern, A. (2008). Educational attainment and cognitive competence in adopted men – A study of international and national adoptees, siblings and a general Swedish population. *Children and Youth Services Review*, 30, 1211–1219.
- Dalen, M., & Rygvoold, A. L. (2006). Educational achievement in adopted children from China. *Adoption Quarterly*, 9(4), 45–58.
- Dalen, M., & Theie, S. (2012). Internationally adopted children from non-European countries: General development during the first two years in the adoptive family. *Scientific World Journal*, 2012, 1–9.
- Dalen, M., & Theie, S. (2014). Similarities and differences between internationally adopted and non-adopted children in their toddler years: Outcomes from a longitudinal study. *American Journal of Orthopsychiatry*, 84(4), 397–408.
- Dalen, M., & Theie, S. (2015). Temperament, social competence and behavior problems among internationally adopted children at age four. *Journal of Basic and Applied Research International*, 5(2), 61–72.
- Dalen, M., & Theie, S. (2019). Academic achievement among adopted and nonadopted children in early school years. *Adoption Quarterly*, 22(3), 199–218.
- De Geer, B. (1992). Internationally Adopted Children in Communication. A Developmental Study. Doctoral Thesis. Sweden: Lund University, Department of Linguistics.
- Field, A. (2013). *Discovering Statistics using IBM SPSS Statistics*. 4th Edition. Los Angeles, SAGE publications.
- Glennen, S. (2007). Predicting language outcome for internationally adopted children. *Journal of Speech, Language and Hearing Research*, 50, 529–548.
- Gresham, R. M., & Elliott, S. N. (1990). *Social skills rating system*. Minneapolis, MN: NCS, Pearson, Inc.
- Gunnar, M. R., van Dulmen, M. H., & The International Adoption Project Team (IAP). (2007). Behavior problems in post institutionalized internationally adopted children. *Development and Psychopathology*, 19, 129–148.
- Harwood, R., Feng, X., & Yu, S. (2013). Preadoption adversities and postadoption mediators of mental health and school outcomes among international, foster, and private adoptees in the United States. *Journal of Family Psychology*, 27(3), 409–420. <https://doi.org/10.1037/a0032908>.
- Helder, E. J., Mulder, E., & Gunnoe, M. L. (2014). A longitudinal investigation of children internationally adopted at school age. *Child Neuropsychology*, 22(1), 39–64. <https://doi.org/10.1080/09297049.2014.967669>.
- Hjern, A., Lindblad, F., & Vinnerljung, B. (2002). Suicide, psychiatric illness, and social maladjustment in intercountry adoptees in Sweden: A cohort study. *The Lancet*, 360, 443–448.
- Hwa-Froelich, D. A., & Matsou, H. (2010). Communication development and differences in children adopted from China and Eastern Europe. *Language, Speech and Hearing Services in School*, 41, 349–366.
- Jacobs, E., Miller, L. C., & Tirella, L. G. (2010). Developmental and behavioral performance of internationally adopted preschoolers: A pilot study. *Child Psychiatry and Human Development*, 41, 15–29.
- Johnson, D. (2000). Medical and developmental sequelae of early institutionalization in Eastern European adoptees. In C. A. Nelson (Ed.), *The effects of early adversity on neurobehavioral development*. Mahwah, NJ: Erlbaum.
- Juffer, F., & van IJzendoorn, H. M. (2005). Behavior problems and mental health referrals of international adoptees. A meta-analysis. *The Journal of the American Medical Association*, 293, 2501–2515.
- Kornør, H., & Jozefiak, T. (2012). Måleegenskaper ved den norske versjonen av Child Behavior Checklist (CBCL). *PsykTestBarn*, 2012(1), 3. <https://doi.org/10.21337/0014>.
- Kvifte-Andresen, I. L. (1992). Behavioral and school adjustment of 12–13-year-old internationally adopted children in Norway. *Journal of Child Psychology and Psychiatry*, 33, 427–439.
- Lin, S. H., Cemark, S., Coster, W. J., & Miller, L. C. (2005). The relationship between length of institutionalization and sensory integration in children adopted from Eastern Europe. *American Journal of Occupational Therapy*, 59(2), 139–147.
- Lindblad, F., Dalen, M., Rasmussen, F., Vinnerljung, B., & Hjern, A. (2009). School performance of international adoptees better than expected from cognitive test results. *European Child & Adolescent Psychiatry*, 18, 301–308.
- McGuinness, T. M., & Pallansch, L. (2000). Competence of children adopted from the former Soviet Union. *Family Relations*, 49, 457–464.
- Melaas, M., Kvello, Ø., & Dalen, M. (2014). Internationally adopted children after arrival: Temperament, behavior problems, and age at adoption as predictors of early motor and communication competence. *Adoption Quarterly*, 17(1), 28–43.
- Merz, E. C., McCall, R. B., & Wright, A. J. (2013). Attention and language as mediators of academic outcomes following early psychosocial deprivation. *International Journal of Behavioral Development*, 37(5), 451–459.
- Miller, B. C., Fan, X., Christensen, M., Grotevant, H. D., & van Dulmen, M. (2000). Comparisons of adopted and nonadopted adolescents in a large, nationally representative sample. *Child Development*, 71(5), 1458–1473.
- Ottem, E. (2009). 20 questions about language skills. *Staped*.
- Raaska, H., Elovainio, M., Sinkkonen, J., Matomäki, S., & Lapinleimu, H. (2011). Internationally adopted children in Finland: Parental evaluations of symptoms of reactive attachment disorder and learning difficulties – FINADO study. *Child: Care, Health and Development*, 34, 152–160. <https://doi.org/10.1111/j.1365-2214.2011.01289.x>.
- Raaska, H., Elovainio, M., Sinkkonen, J., Stolt, S., Jalonen, I., Matomäki, S., Mäkipää, & Lapinleimu, H. (2013). Adopted children's language difficulties and their relation to symptoms of reactive attachment disorders; FinAdo study. *Journal of Applied Developmental Psychology*, 34, 152–160.
- Raleigh, E., & Kao, G. (2013). Is there a (transracial) adoption achievement gap? A national longitudinal analysis of adopted children's educational performance. *Children and Youth Services Review*, 35, 142–150.
- Richardson, G. A., & Day, N. L. (2000). Epidemiologic considerations. In M. Hersen, & R. T. Ammerman (Eds.), *Advanced abnormal child psychology* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Associates.
- Rosnati, R., Barni, D., & Montiroso, R. (2010). Italian international adoptees at home and at school: A multi-informant assessment of behavioral problems. *Journal of Family Psychology*, 24(6), 783–786.
- Rosnati, R., Montiroso, R., & Barni, D. (2008). Behavioral and emotional problems among Italian international adoptees and non-adopted children: Father's and mother's reports. *Journal of Family Psychology*, 22(3), 541–549.
- Rutter, M., Beckett, C., Castle, J., Colvert, E., Kreppner, J., Metha, M., & Sonuga-Barke, E. (2009). Effects of profound early institutional deprivation: An overview of findings from a UK longitudinal study of Romanian adoptees. In G. M. Wrobel, & B. Neil (Eds.), *International advances in adoption research for practice* (pp. 147–167). UK: Wiley-Blackwell.
- Rutter, M., Sonuga-Barke, E. J., Beckett, C., Castle, J., Kreppner, J., Kumsta, R., ... Bell, C. A. (2010). Deprivation-specific psychological patterns: Effects of institutional deprivation. *Monographs of the Society for Research in Child Development*, 75, 1.
- Rygvoold, A. L., & Theie, S. (2016). Internationally adopted children's reading comprehension in second grade. *Adoption Quarterly*, 19(3), 166–187.
- Rygvoold, A.L. (1999). Better or worse? Intercountry adopted children's language. In A.L. Rygvoold, M. Dalen, B. Sætersdal (eds.), *Mine – Yours – Ours and Theirs. Adoption, Changing Kinship and Family Patterns* (221–229) – Oslo: Department of Special Needs Education, University of Oslo.
- Scott, K. A., Roberts, J. A., & Glennen, S. (2011). How well do children who are internationally adopted acquire language? A meta-analysis. *J Speech Lang Hear Res*, 54(4), 1153–1169.
- Selman, P. (2012). The rise and fall of intercountry adoption in the 21st century: Global trends from 2001 to 2010. In J. L. Gibbons, & K. S. Rotabi (Eds.), *Intercountry adoption. Policies, practices, and outcomes* (pp. 187–199). New York: Ashgate.
- Sørli, M.-A., & Ogden, T. (2015). School-wide positive behavior support-Norway: Impacts on problem behavior and classroom climate. *International Journal of School & Educational Psychology*, 1–16. <https://doi.org/10.1080/21683603.2015.1060912>.
- Tan, T., & Camras, L. A. (2011). Social skills of adopted Chinese girls at home and in school: Parent and teacher ratings. *Children and Youth Services Review*, 33, 1813–1821.
- Tan, T. (2009). School-Age Adopted Chinese Girls' Behavioral Adjustment, Academic Performance, and Social Skills: Longitudinal Results. *American Journal of Orthopsychiatry*, 2009. Vol. 79, (2), 244–251.
- Tirella, L. G., Chan, W., & Miller, L. C. (2006). Educational outcomes of children adopted from Eastern Europe, now ages 8–12. *Journal of Research in Childhood Education*, 20(4), 245–254.
- Van der Ende, J., & Verhulst, R. F. C. (2005). Informant, gender and age differences in

- ratings of adolescent problem behavior. *European Child and Adolescent Psychiatry*, 14, 117–126.
- van IJzendoorn, M., Juffer, F., & Klein Poelhuis, C. (2005). Adoption and cognitive development: A meta-analytic comparison of adopted and nonadopted children's IQ and school performance. *Psychological Bulletin*, 131(2), 301–316.
- Vinnerljung, B., Lindblad, F., Rasmussen, F., & Dalen, M. (2010). School performance at age 16 among international adoptees: A Swedish national cohort study. *International Social Work*, 53, 443–456.
- Vorria, P., Papaligoura, Z., Kopakaki, M., Dunn, J., & van IJzendoorn, M. H. (2006). The development of adopted children after institutional care: A follow-up study. *Journal of Child Psychiatry and Psychology and Psychiatry*, 47, 1246–1253.
- Zeanah, C. H., Smyke, A. T., Koga, S. F., Carlson, E., & The Bucharest Early Intervention Project Core Group. (2005). Attachment in institutionalized and community children in Romania. *Child Development*, 76, 1015–1028.