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# Teacher and child perceptions of relationship quality and ethnic minority children's behavioral adjustment in upper elementary school: A cross-lagged approach



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## ABSTRACT

In this study, cross-lagged longitudinal modeling was used to examine associations between teacher-child relationship quality and children's behavioral adjustment in a sample of sixth grade ethnic minority children. In comparison to previous cross-lagged studies, children were older and cross-informant models were used. Both teachers ( $N = 12$ ) and children ( $N = 226$ ) reported on the relationship quality (Closeness, Conflict, and Dependency or Negative Expectations), and children's behavioral adjustment (Externalizing Problems, Internalizing Problems, and Prosocial Behavior) at the beginning and the end of the school year. Children's externalizing behavior at the beginning of the school year was consistently and positively associated with conflict at the end of the school year. Interestingly, dependency at time 1 was associated with children's behavioral adjustment at time 2, whereas for closeness and conflict associations were the other way around (i.e., children's behavior at time 1 was associated with teacher-child closeness and conflict at time 2). Taken together, our results seem to indicate that bidirectional associations between teacher-child relationships and behavioral adjustment apply to older, ethnic minority children as well.

## 1. Introduction

Many studies have found that the affective quality of teacher-child relationships is a predictor of children's behavioral adjustment (e.g., Buyse, Verschueren, Verachert, & Van Damme, 2009; Graves & Howes, 2011), whereas other research has shown that children's behavioral adjustment predicts teacher-child relationship quality (TCRQ; e.g., Jerome, Hamre, & Pianta, 2009; Rudasill, 2011). Taken together, these unidirectional studies suggest that associations between the TCRQ and children's behavioral adjustment will be bidirectional. The few existing cross-lagged studies provided further evidence that bidirectional associations do exist (e.g., Doumen et al., 2008; Mejia & Hoglund, 2016). However, previous cross-lagged studies focused on relatively young children (i.e., preschool to third grade), whereas a recent meta-analysis revealed that the TCRQ becomes more important for children's school engagement and academic achievement as they grow older (Roorda, Koomen, Spilt, & Oort, 2011). Therefore, we examined cross-lagged associations between TCRQ and behavioral adjustment in a sample of sixth graders. Furthermore, and different from previous cross-lagged studies, we used both teacher and child reports of TCRQ and behavioral adjustment, to prevent shared-informant bias. Finally, we focused on an at-risk group (i.e., ethnic minority students), because previous studies suggested that TCRQ might be particularly important for students at risk of negative school adjustment (Roorda et al., 2011).

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### 1.1. Theoretical framework

With regard to associations between TCRQ and children's behavioral adjustment, different models can be distinguished: the relationship-driven model, the child-driven model, and the transactional model (Mejia & Hoglund, 2016). The relationship-driven model assumes that it is the TCRQ that influences children's behavioral adjustment, whereas the child-driven model assumes that it is children's behavioral adjustment that influences the TCRQ. Finally, the transactional model hypothesizes that TCRQ and children's behavioral adjustment are reciprocally related, that is, they influence and strengthen each other over time (Mejia & Hoglund, 2016).

Studies investigating a relationship-driven model are often based on an extended attachment perspective. According to an extended attachment perspective (Verschuere & Koomen, 2012), positive teacher-child relationships will help children to feel emotionally secure and, hence, enable them to adjust to the classroom environment in a healthy way (Pianta, 1999; Thijs & Koomen, 2008). Alternatively, negative teacher-child relationships let children believe that they are unworthy of fair and caring treatment and, hence, make them respond in an aggressive and hostile way to others as well (Doumen, Buyse, Colpin, & Verschuere, 2011). Studies based on attachment theory usually distinguish between three relationship dimensions: closeness (i.e., the degree of warmth and openness in the relationship), conflict (i.e., the degree of negative and coercive teacher-child interactions), and dependency (i.e., clingy and overtly dependent behaviors of the child; Pianta, 2001).

The underlying hypothesis of the child-driven model (children's behaviors impact the TCRQ) can also be found in, for example, socialization theory (Bell, 1968; McHale & Crouter, 2003; Mejia & Hoglund, 2016). According to this theory, it is not only teachers who influence children's behaviors and development but children themselves can be considered as active agents of change as well. That is, children's behaviors can also affect how teachers view them and behave towards them. More specifically, the degree to which children display externalizing, internalizing, and prosocial behaviors in the classroom context will partly determine how teachers behave towards children (Bell, 1968; McHale & Crouter, 2003; Mejia & Hoglund, 2016).

Finally, studies examining a transactional model, as is the case in the present study, may be inspired by the developmental systems theory (Pianta, Hamre, & Stuhlman, 2003). According to this theory, the teacher-child relationship is conceptualized as a dyadic microsystem, in which teachers' and children's personal and behavioral characteristics influence the way in which they view and experience their mutual relationship and vice versa (Pianta et al., 2003). Children's behavioral adjustment is considered to be one of the most significant factors influencing TCRQ and is, in turn, also theorized to be influenced by the quality of the relationship.

### 1.2. Unidirectional associations between TCRQ and behavioral adjustment

According to the relationship-driven model, positive relationships with teachers (i.e., high levels of closeness, and low levels of conflict and dependency) will lead to better behavioral adjustment (i.e., less externalizing and internalizing behavior, and more prosocial behavior), whereas the child-driven model implies that children's positive behaviors will lead to more positive relationships with teachers (Mejia & Hoglund, 2016). Unidirectional longitudinal studies frequently found support that the TCRQ influences children's behavioral adjustment and that children's behavioral adjustment impacts TCRQ. This evidence has been most convincing for teacher-child conflict and children's externalizing behavior (e.g., Henricsson & Rydell, 2004; Jerome et al., 2009; O'Connor, Collins, & Supplee, 2012), whereas associations between closeness and both externalizing and internalizing behavior as well as between conflict and internalizing behavior have been supported by some longitudinal studies but not by others (e.g., Arbeau, Coplan, & Weeks, 2010; Henricsson & Rydell, 2006; Jerome et al., 2009; Rudasill, 2011). With regard to internalizing behavior as a predictor of conflict, there was disagreement between studies in whether this association would be positive (Jerome et al., 2009) or negative (Rudasill, 2011). Associations between dependency and behavioral adjustment and between TCRQ and prosocial behavior were less frequently investigated but seem to be supported by existing studies (Arbeau et al., 2010; Henricsson & Rydell, 2004, 2006; Myers & Morris, 2009). In general, findings of unidirectional studies thus offer support for both the relationship-driven model and the child-driven model but it depends on the specific relationship dimension and the specific behavior whether associations occur regularly in longitudinal studies, with most consistent evidence being found for the association between conflict and externalizing behavior.

### 1.3. Bidirectional associations between TCRQ and behavioral adjustment

There also exist a few studies that used a cross-lagged design to examine the transactional model. With regard to conflict, Zhang and Sun (2011) found positive, bidirectional associations between conflict and externalizing behavior in their cross-lagged study with two measurement occasions focusing on Chinese preschool children, whereas internalizing problems at time 1 were positively associated with conflict at time 2 but not the other way around. In a study with three measurement occasions focusing on Belgian kindergartners, Doumen et al. (2008) revealed positive associations from aggressive behavior at time 1 to conflict at time 2 and from conflict at time 2 to aggressive behavior at time 3 but not the other way around. In another study with three occasions, focused on preschool boys at risk for developing externalizing problems, Roorda, Verschuere, Vancraeyveldt, Van Craeyveldt, and Colpin (2014) revealed positive, bidirectional links between conflict and both externalizing behavior and internalizing behavior but only from time 1 to 2 and not from time 2 to 3. Furthermore, negative associations from conflict at time 1 to prosocial behavior at time 2 and from prosocial behavior at time 2 to conflict at time 3 were found but not the other way around (Roorda et al., 2014). Finally, in a study among children from kindergarten to third grade including three time points, Mejia and Hoglund (2016) found that externalizing problems positively predicted conflict both from time 1 to 2 and time 2 to 3 but not the other way around.

With regard to closeness, both Zhang and Sun (2011) and Mejia and Hoglund (2016) did not find significant cross-lagged

associations between closeness and children's externalizing and internalizing problems. In contrast, Roorda et al. (2014) reported cross-lagged associations for closeness and prosocial behavior, which were found both from time 1 to 2 and from time 2 to 3. In addition, internalizing behavior positively predicted closeness but not the other way around (Roorda et al., 2014). As Roorda et al. (2014) was the only cross-lagged study that focused on an at-risk sample (i.e., boys at risk for externalizing problems), it is possible that closeness is especially a relevant relationship dimension for at-risk samples. Finally, with respect to dependency, Roorda et al. (2014) revealed bidirectional associations between dependency and internalizing behavior. In addition, dependency negatively predicted prosocial behavior but not the other way around. In contrast, Mejia and Hoglund (2016) showed that internalizing problems positively predicted dependency, whereas associations were not found from dependency to internalizing problems.

To conclude, in a general sense, the few existing cross-lagged studies suggest that the transactional model applies to associations between TCRQ and children's behavioral adjustment. However, on a more detailed level, associations might be either relationship-driven, child-driven, or bidirectional depending on the specific relationship dimension or behavior that is investigated and the specific study taken into account. Interestingly, although unidirectional studies frequently offered support for both relationship-driven and child-driven associations between conflict and externalizing behavior, these associations were not always found in cross-lagged studies (Roorda et al., 2014). With respect to closeness, only Roorda et al. (2014) found evidence for transactional associations. Concerning dependency, associations with internalizing behaviors might be either bidirectional (Roorda et al., 2014) or child-driven (Mejia & Hoglund, 2016). More research about cross-lagged associations between TCRQ and children's behavioral adjustment thus seems to be warranted. Furthermore, existing cross-lagged studies were all conducted in preschool to third grade, used only teacher reports about both TCRQ and behavioral adjustment, and often did not include dependency and prosocial behavior. Therefore, the present cross-lagged study contributes to our knowledge about bidirectional associations in several ways: (a) by the focus on older children, (b) by taking account of both teacher and child perceptions of TCRQ and behavioral adjustment, (c) by examining associations in cross-informant models, (d) by also including dependency and prosocial behavior, and (e) by focusing on students who were at increased risk for behavioral maladjustment due to their ethnic background (see below).

#### 1.4. Ethnic minority youth at increased risk for behavioral maladjustment

According to the academic risk perspective (Hamre & Pianta, 2001), the TCRQ is particularly important for children who are at risk for academic maladjustment, because they have “more to gain, or lose, through their ability to adapt to the social environment of the classroom” (Hamre & Pianta, 2001, p.627). Previous studies have indeed found evidence that the TCRQ is more influential for at risk children, such as children with a low socioeconomic status or learning problems, than for children who are not at risk (see Roorda et al., 2011 for meta-analytic findings). Ethnic minority children can also be considered as having an increased risk for academic maladjustment, as they often underperform in school compared to ethnic majority children (Azzolini, Schnell, & Palmer, 2012; Woolf, McManus, Potts, & Dacre, 2013) and are more likely to drop out of school (Phalet, Deboosere, & Bastiaenssen, 2007). Ethnic minority children in the Netherlands may even be more at risk when behavioral adjustment is considered as an outcome variable, as they are often negatively stereotyped in the behavioral domain. In older Moroccan-Dutch adolescents (i.e., 13–17 years old), these kind of negative stereotypes were found to contribute to the continuation of negative behavior in line with the negative stereotype (Kamans, Gordijn, Oldenhuis, & Otten, 2009), which may apply to the development of younger children (e.g., the sixth graders in the present study) from other ethnic minority groups (e.g., Turkish-Dutch students) as well. Because knowledge about transactional associations between TCRQ and behavioral adjustment seems to be particularly relevant for at risk children (c.f. Mejia & Hoglund, 2016; Roorda et al., 2014), we focused on sixth graders with an ethnic minority background.

#### 1.5. The present study

In the present study, we examined cross-lagged associations between TCRQ and children's behavioral adjustment in a sample of Dutch ethnic minority children. Our aim was to examine to what extent transactional associations between TCRQ and children's behavioral adjustment would (a) occur in older children who are at increased risk due to their ethnic minority status, (b) emerge in cross-informant models with both teacher and child reports of TCRQ and behavioral adjustment, and (c) differ across relationship dimensions and across indicators of behavioral adjustment.

First, we expected to find bidirectional associations between TCRQ and behavioral adjustment (Roorda et al., 2014; Zhang & Sun, 2011). Second, we hypothesized that associations between relationship quality and behavioral adjustment could differ depending on whether the teacher or the child reported about the relationship or behavior (cf., Hughes, 2011; Rey, Smith, Yoon, Somers, & Barnett, 2007). However, as studies with both teacher and child reports are scarce, we were not able to formulate more specific hypotheses. Finally, we expected that associations between conflict and externalizing behavior would be most consistent (Jerome et al., 2009; Zhang & Sun, 2011).

## 2. Method

### 2.1. Participants

Our sample consisted of 226 ethnic minority children (111 boys,  $M_{\text{age}} = 11$  years and 6 months,  $SD = 15.50$  months) and twelve teachers (four male) from twelve sixth grade classes of ten primary schools in the Netherlands. Details on cross-nesting of students to teachers and teachers to schools can be found in Table 1. According to the Netherlands Institute for Social Research, all schools were

**Table 1**  
Cross-nesting of students to teachers.

School	Teacher	Gender teacher	Number of students
1	1	Female	16
	2	Female	18
2	3	Female	27
	4	Male	13
3	5	Female	25
4	6	Female	23
5	7	Female	18
6	8	Male	11
7	9	Female	20
8	10	Male	9
9	11	Female	19
10	12	Male	27
Total			226

situated in areas with a below average socio-economic status (i.e., based on the available information about income, employment opportunities, and educational status per postal code area). Of the 226 students, 41.2% had a Moroccan background and 18.6% had a Turkish background. The remaining 40.2% had other ethnic backgrounds (e.g., Surinamese, Antillean, Pakistani). For approximately half of the children, the primary language of communication with their parents was not the Dutch language (49.9% for fathers, 51.1% for mothers). Most of the ethnic minority students in our sample were second-generation immigrants (79.2%), born in the Netherlands themselves, whereas at least one parent was born in a non-Western country. The remaining 20.8% were first-generation immigrants, born in a non-Western country. At the onset of the study, these students had lived in the Netherlands for an average of 7 years and 7 months ( $SD = 3$  years and 2 months). One way ANOVAs showed that there were no differences between ethnic groups on the study variables ( $ps > .05$ ), except for teacher-reported Dependency at Time 1 and child-reported Internalizing Problems at Time 2. Teachers reported more dependency in their relationships with children with a Moroccan background than in relationships with children with other ethnic backgrounds at Time 1 (no differences were found for children with a Turkish background). At Time 2, children with a Turkish background reported more Internalizing Problems than children with a Moroccan background (no differences were found for children with other ethnic backgrounds).

Of the twelve teachers, three had an ethnic minority background (all female), and seven a native Dutch background. For two teachers, ethnic background information was missing. The percentage of non-Western ethnic minority students in teachers' classrooms varied from 57.9% to 100%.

Originally, 284 children and 15 teachers participated in our study. However, three teachers and their students ( $N = 42$  children) had to be excluded, because teachers changed during the school year or because questionnaires of the first occasion were completed too late and questionnaires of the second occasion were not completed at all. Furthermore, since our focus was on an at risk group (e.g., non-Western ethnic minority students), students with a native Dutch background ( $N = 10$ ) and students with a Western ethnic minority background (e.g., German, Australian;  $N = 6$ ) were excluded from the analyses.

## 2.2. Procedure

At the start of the study, children's parents were informed by letter. Five children did not receive parental permission and, hence, did not participate in the study. Data collection took place at two occasions: two months after the onset of the school year (October 2012), and two months before the end of the school year (April 2013). At both occasions, children and teachers completed questionnaires about their mutual relationship and about children's behavior. Teachers completed questionnaires for twelve randomly selected children. As a result, teacher reports were available for 144 students (75 boys). There were almost no differences in child-reported relationship quality and behavioral adjustment between children for whom teacher reports were available and children for whom teacher reports were not available, except for Internalizing Problems at Time 3 and Negative Expectations at Time 3. Children for whom teacher reports were not available reported more Internalizing Problems and more Negative Expectations than children for whom teacher reports were available. At the end of the study, students received a small gift and teachers a gift certificate for their participation.

## 2.3. Measures

### 2.3.1. Teacher-reported behavioral adjustment

Teacher perceptions of their students' behavioral adjustment were measured with three subscales of the Dutch translation of the Strengths and Difficulties Questionnaire (SDQ; Van Widenfelt, Goedhart, Treffers, & Goodman, 2003). The subscale Conduct Problems (e.g., "Often fights with other youth or bullies them") was used as an indicator of Externalizing Problems, and the subscale Emotional Symptoms (e.g., "Many worries or often seems worried") as indicator of Internalizing Problems. The third subscale was Prosocial Behavior (e.g., "Shares readily with other children, for example books, games, food"). Each subscale consisted of five items. Answers were given on a 3-point scale, ranging from 1 (*not true*) to 3 (*certainly true*). Previous studies showed that the SDQ has

satisfactory internal consistency and test-retest reliability (see Stone, Otten, Engels, Vermulst, & Janssens, 2010 for a review study). Furthermore, support for the validity of the SDQ has also been found (e.g., Goodman, 1997, 2001; Stone et al., 2010). Cronbach's alpha coefficients for teacher reports in the present study were 0.79 and 0.78 for Externalizing Problems, 0.65 and 0.74 for Internalizing Problems, and 0.87 and 0.89 for Prosocial Behavior at Time 1 and Time 2, respectively.

### 2.3.2. Child-reported behavioral adjustment

Student perceptions of their own behavioral adjustment were measured with subscales of the Dutch translation of the self-report version of the SDQ (Van Widenfelt et al., 2003). The subscale Emotional Symptoms (e.g., "I worry a lot"; 5 items) was used as an indicator of Internalizing Behavior. The second subscale was Prosocial Behavior (e.g., "I am helpful if someone is hurt, upset or feeling ill"; 5 items). Since previous research showed that a third subscale Conduct Problems (e.g., "I fight a lot"; 5 items) of the SDQ self-report version has low internal consistency (Van Widenfelt et al., 2003), this SDQ scale was supplemented with a subset of items from the subscales Aggressive Behavior (e.g., "I tease a lot"; 4 items) and Rule-Breaking behavior (e.g., "I swear or use obscene language"; 2 items) of the Youth Self Report (YSR; De Groot, Koot, & Verhulst, 1996) to measure Externalizing Problems (a total of 11 items). All items were answered on a 3-point scale ranging from 1 (*not true*) to 3 (*certainly true*). In the present study, Cronbach's alpha coefficients were 0.78 and 0.79 for Externalizing Problems, 0.63 and 0.64 for Internalizing Problems, and 0.66 and 0.62 for Prosocial Behavior at Time 1 and Time 2, respectively.

### 2.3.3. Teacher-reported relationship quality

Teachers' perceptions of the quality of their relationship with individual students were measured with the Dutch adaptation of the Student-Teacher Relationship Scale (STRS; Koomen, Verschuieren, Van Schooten, Jak, & Pianta, 2012; Pianta, 2001). In the present study, a short form of this questionnaire was used, consisting of 15 items, measuring the degree of Conflict (5 items; e.g., "This child easily becomes angry with me"), Closeness (5 items, e.g., "I share an affectionate, warm relationship with this child"), and Dependency (5 items, e.g., "This child asks for my help when he/she does not really need help") in the relationship (Zee, Koomen, & Van der Veen, 2013). Items were answered on a 5-point scale, ranging from 1 (*not at all applicable*) to 5 (*very applicable*). Previous studies have reported high internal consistency scores (Doumen, Koomen, Buyse, Wouters, & Verschuieren, 2012; Koomen et al., 2012) and provided support for the predictive and convergent validity of the STRS (e.g., Doumen et al., 2012; Koomen et al., 2012). For the short version, good internal consistency scores have been reported as well (Zee et al., 2013). Cronbach's alpha coefficients in the present study were also satisfactory: 0.89 and 0.91 for Conflict, 0.85 and 0.85 for Closeness, and 0.89 and 0.91 for Dependency at Time 1 and Time 2, respectively.

### 2.3.4. Child-reported relationship quality

To measure students' perceptions of the relationship quality, the Student Perception of Affective Relationship with Teacher Scale (SPARTS; Koomen & Jellesma, 2015) was used. The SPARTS measures the degree of Conflict (10 items; e.g., "I easily have quarrels with my teacher"), Closeness (8 items; e.g., "I tell my teacher things that are important to me"), and Negative Expectations (7 items; e.g., "I wish my teacher could spend more time with me") in the relationship with the teacher. It should be noted that Negative Expectations represents a different dimension of the teacher-child relationship than Dependency from the STRS. Negative Expectations reflects feelings of uncertainty and unfulfilled needs in the relationship (Koomen & Jellesma, 2015). Items were answered on a 5-point scale, ranging from 1 (No, that is not true) to 5 (Yes, that is true). Satisfactory internal consistencies were found for all three scales (Koomen & Jellesma, 2015). In the present study, Cronbach's alpha coefficients were 0.79 and 0.85 for Conflict, 0.82 and 0.87 for Closeness, and 0.73 and 0.72 for Negative Expectations at Time 1 and Time 2, respectively.

## 2.4. Statistical analyses

First, descriptive statistics were obtained from SPSS Statistics (version 20) and Pearson correlation coefficients ( $r$ ) for all study variables were also calculated in SPSS. Second, cross-lagged structural equation modeling (SEM) was used to examine the reciprocal associations between relationship quality and behavioral adjustment (i.e., manifest variables were used in all models), using MPlus Version 7.11 (Muthén & Muthén, 1998–2015). Two kinds of cross-informant models were estimated: (1) models with child reports about the TCRQ and teacher reports about behavioral adjustment (for the baseline model, see Fig. 1), and (2) models with teacher reports about the TCRQ and child reports about behavioral adjustment (for the baseline model, see Fig. 2). Separate models were estimated for each of the three relationship dimensions (Conflict, Closeness, and Dependency or Negative Expectations).<sup>1</sup> This resulted in the estimation of six separate models.

<sup>1</sup> We also examined alternative models in which all three relationship dimensions were included at the same time. With regard to child-reported TCRQ and teacher-reported behavioral adjustment, the alternative model showed a significant, positive association between teacher-reported Externalizing Problems at Time 1 and child-reported Conflict at time 2 ( $\beta = 0.31, p = .004$ ), as was the case in the separate models. Different, however, from what was found in the separate models, both child-reported Closeness ( $\beta = 0.14, p = .017$ ) and child-reported Conflict ( $\beta = 0.22, p = .048$ ) at Time 1 were positively associated with teacher-reported Externalizing Problems at Time 2. However, the RMSEA of this model showed poor fit (RMSEA = 0.104) and, hence, we decided to report the separate models.

With regard to teacher-reported TCRQ and child-reported behavioral adjustment, the same associations were found in the alternative model as in the separate models. Except for the association between teacher-reported dependency at Time 1 and child-reported internalizing problems at Time 2, which was not found in the alternative model.

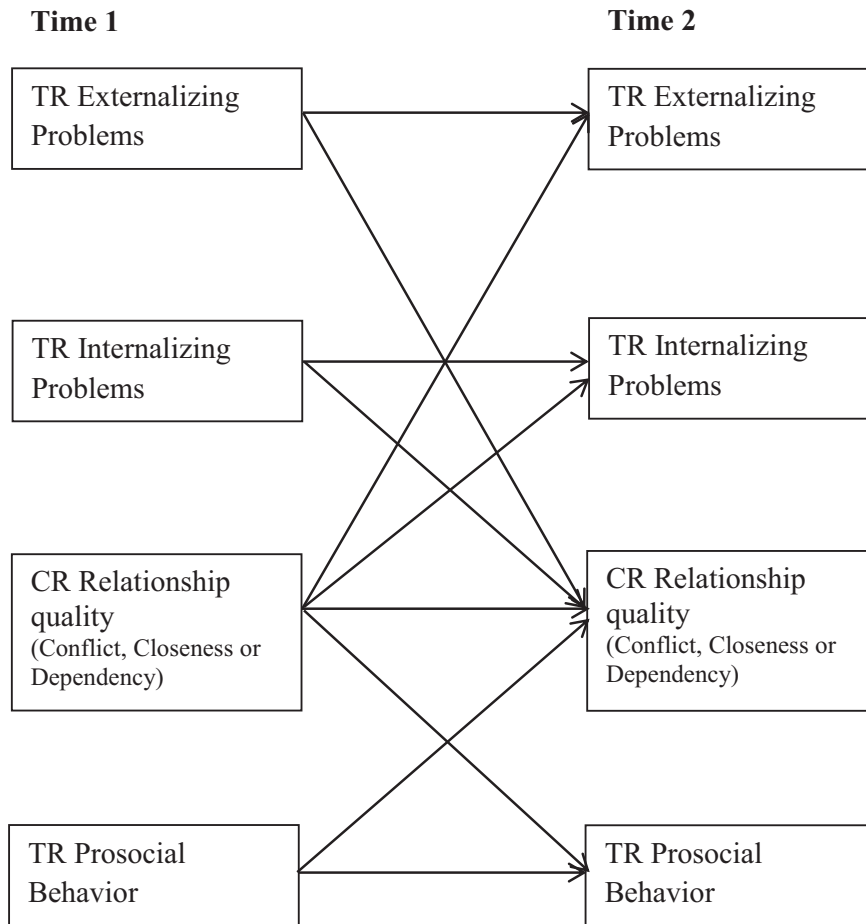


Fig. 1. Baseline model for child-reported (CR) relationship quality and teacher-reported (TR) behavioral adjustment.

In each model, within-time correlations (i.e., correlations between variables within one time point), autoregressive or stability paths (i.e., a path from a certain variable at Time 1 to the same variable at Time 2), and cross-lagged paths (i.e., a path from a certain variable at Time 1 to another variable at Time 2) were estimated (Kline, 2011). Cross-lagged paths were included from TCRQ at Time 1 to behavior at Time 2, and from behavior at Time 1 to TCRQ at Time 2. Due to the excessive skewness of some variables (i.e., skewness coefficients larger than 1 or  $-1$ ), full information maximum likelihood with robust standard errors (MLR) was used to estimate missing data (Muthén & Muthén, 1998–2015).

For each individual model, two steps were taken: First, a model was tested in which all paths were freely estimated. Second, to create a more parsimonious model, all non-significant cross-lagged paths were removed from the model. To evaluate model fit, standard model fit indices, the chi-square index ( $\chi^2$ ), the root mean square error of approximation (RMSEA), the comparative fit index (CFI), and the Tucker Lewis Index (TLI) were used (Apers et al., 2013; Luyckx, Seiffge-Krenke, & Hampson, 2010; Roorda et al., 2014). For exact model fit, the  $\chi^2$  value should be non-significant. However, because statistical models often do not fit exactly in the population, we also consider approximate fit indices (i.e., RMSEA, CFI, and TLI). An RMSEA value below 0.06 indicates close fit, a value below 0.08 indicates acceptable fit, whereas a value above 0.10 indicates poor fit. A CFI and TLI value above 0.95 indicates close fit, whereas a value above 0.90 indicates acceptable fit (Hu & Bentler, 1999; Kline, 2011). The trimmed model was accepted as the final model if this model had a comparable or better fit than the first model. Three criteria were used to compare model fit: First, because our estimation method was MLR, the Satorra-Bentler Scaled chi-square (SBS- $\chi^2$ ) difference test was used to compare the  $\chi^2$  values of the two models. The criterion was that  $\Delta \chi^2$  should be nonsignificant at  $p > .05$ . Second, the criterion for the RMSEA was  $\Delta \text{RMSEA} < 0.015$ . Third, the criterion for the CFI and TLI was  $\Delta \text{CFI}$  and  $\Delta \text{TLI} < 0.010$ . For all models, standardized path coefficients are reported. Models in which none of the cross-lagged paths were significant are not displayed in the figures.

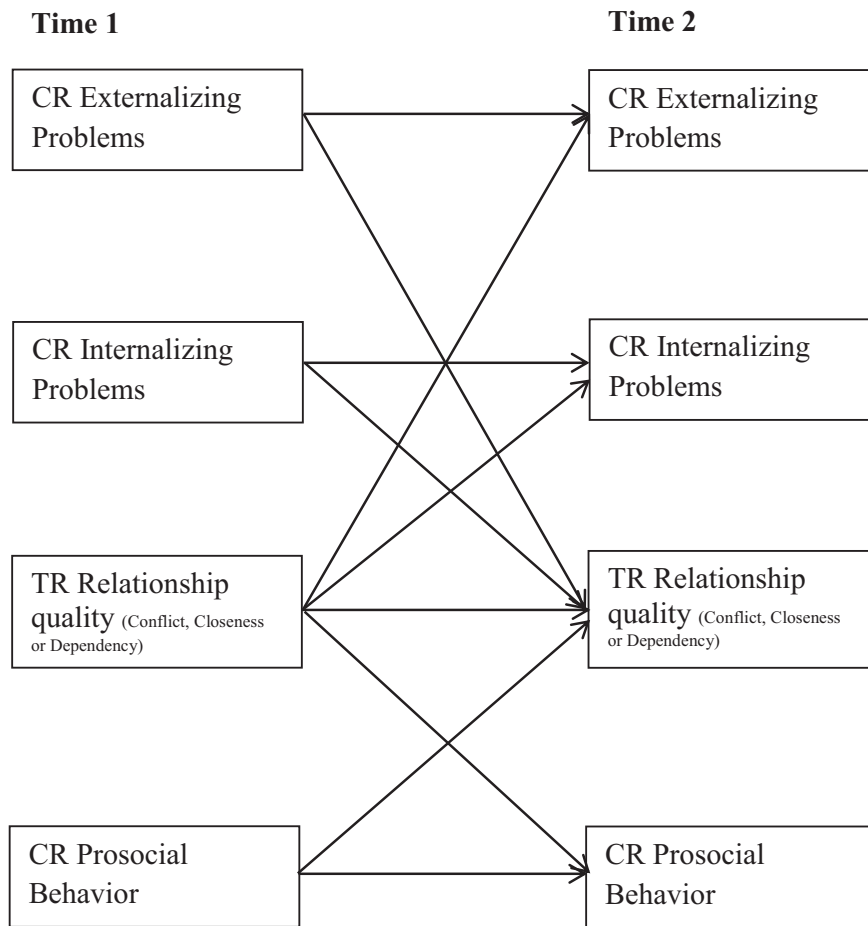


Fig. 2. Baseline model for teacher-reported (TR) relationship quality and child-reported (CR) behavioral adjustment.

### 3. Results

#### 3.1. Correlations

In Table 2, correlations between all variables are presented. With regard to the relationship quality dimensions, the correlations between Time 1 and Time 2 of the same variable (stability over time) ranged between 0.45 (child-reported Conflict) and 0.77 (teacher-reported Conflict). The associations between teacher reports and child reports of either Closeness or Conflict (agreement between raters) ranged between 0.19 (Closeness at Time 2) and 0.45 (Conflict at Time 2). With respect to the behavioral dimensions, the correlations between Time 1 and Time 2 of the same variable (stability over time) varied from 0.47 (child-reported Prosocial Behavior) to 0.77 (teacher-reported Externalizing Problems). Associations between teacher reports and child reports of either Externalizing Problems, Internalizing Problems, or Prosocial Behavior (agreement between raters) varied from 0.09 (Internalizing Problems at Time 1) to 0.48 (Externalizing Problems at Time 2).

Correlations between teacher reports of TCRQ and child reports of behavior ranged between  $-0.01$  (teacher-reported Closeness at Time 1 and child-reported Internalizing Problems at Time 2) and 0.47 (teacher-reported Conflict and child-reported Externalizing Problems at Time 2). Correlations between child reports of TCRQ and teacher reports of child behavior varied between 0.02 (teacher-reported Prosocial Behavior at Time 1 and child-reported Negative Expectations at Time 2) and 0.45 (child-reported Conflict and teacher-reported Externalizing Problems at Time 2).

#### 3.2. Model estimation

##### 3.2.1. Child-reported TCRQ and teacher-reported behavior

Three models were estimated with child reports of relationship quality and teacher reports of behavioral adjustment. The fit indices for the baseline model and the changes in fit between the baseline model and the final trimmed model are presented in



**Table 2**  
Descriptives and correlations for all study variables.

	N	M (SD)	Min.	Max.	1	2	3	4	5	6	7	8	9	
1 Child Closeness T1	218	3.45 (0.92)	1.00	5.00	–									
2 Child Closeness T2	220	3.51 (1.01)	1.00	5.00	.61**	–								
3 Child Conflict T1	218	1.76 (0.68)	1.00	4.20	–.46**	–.29**	–							
4 Child Conflict T2	219	1.82 (0.79)	1.00	4.90	–.35**	–.61**	.45**	–						
5 Child Negative Expectations T1	217	1.88 (0.76)	1.00	4.57	–.35**	–.14*	.63**	.22**	–					
6 Child Negative Expectations T2	219	1.76 (0.68)	1.00	4.14	–.20**	–.45**	.26**	.57**	.51**	–				
7 Child Ext. Problems T1	212	2.24 (0.27)	1.00	2.27	–.35**	–.26**	.64**	.43**	.40**	.18*	–			
8 Child Ext. Problems T2	217	1.21 (0.26)	1.00	2.45	–.26**	–.41**	.43**	.58**	.20	.36**	.60**	–		
9 Child Int. Problems T1	213	1.43 (0.41)	1.00	2.80	–.14*	–.13	.26**	.15*	.45**	.27**	.39**	.20**	–	
10 Child Int. Problems T2	218	1.35 (0.38)	1.00	2.80	–.18**	–.26**	.24**	.35**	.40**	.50**	.29**	.41**	.57**	
11 Child Prosocial Behavior T1	213	2.63 (0.37)	1.00	3.00	.41**	.26**	–.27**	–.06	–.08	.04	–.35**	–.25**	–.13	
12 Child Prosocial Behavior T2	219	2.68 (0.35)	1.40	3.00	.24**	.36**	–.16*	–.24**	–.03	–.15*	–.35**	–.40**	–.17*	
13 Teacher Closeness T1	141	3.45 (0.84)	1.20	5.00	.35**	.21*	–.26**	–.10	–.12	.04	–.17	–.08	–.02	
14 Teacher Closeness T2	127	3.43 (0.87)	1.00	5.00	.25**	.19*	–.34**	–.18	–.15	.02	–.26**	–.23*	–.04	
15 Teacher Conflict T1	141	1.76 (1.05)	1.00	4.60	–.37**	–.33**	.38**	.31**	.08	.12	.33**	.36**	–.02	
16 Teacher Conflict T2	127	1.92 (1.08)	1.00	4.80	–.29**	–.39**	.44**	.45**	.13	.19*	.43**	.47**	.06	
17 Teacher Dependency T1	141	2.00 (1.02)	1.00	5.00	–.08	–.28**	.17	.22**	.07	.32**	.08	.25**	.03	
18 Teacher Dependency T2	127	2.07 (1.03)	1.00	5.00	–.15	–.32**	.32**	.31**	.08	.25**	.22*	.40**	.15	
19 Teacher Ext. Problems T1	141	1.28 (0.41)	1.00	2.80	–.25**	–.27**	.33**	.41**	.08	.14	.40**	.44**	.04	
20 Teacher Ext. Problems T2	126	1.29 (0.40)	1.00	2.60	–.17	–.26**	.38**	.45**	.11	.16	.42**	.48**	.05	
21 Teacher Int. Problems T1	141	1.33 (0.38)	1.00	2.60	–.15	–.29**	.13	.14	.08	.18*	.04	.10	.09	
22 Teacher Int. Problems T2	126	1.38 (0.41)	1.00	2.60	–.17	–.26**	.15	.20*	.05	.21*	.02	.16	.05	
23 Teacher Prosocial Behavior T1	141	2.47 (0.55)	1.00	3.00	.31**	.31**	–.22*	–.21*	.03	.02	–.25**	–.23**	–.03	
24 Teacher Prosocial Behavior T2	126	2.43 (0.55)	1.00	3.00	.31**	.38**	–.30**	–.31**	–.04	–.13	–.33**	–.28**	–.03	
1 Child Closeness T1	10	11	12	13	14	15	16	17	18	19	20	21	22	23
2 Child Closeness T2														
3 Child Conflict T1														
4 Child Conflict T2														
5 Child Negative Expectations T1														
6 Child Negative Expectations T2														
7 Child Ext. Problems T1														
8 Child Ext. Problems T2														
9 Child Int. Problems T1														
10 Child Int. Problems T2														

(continued on next page)

Table 2 (continued)

	10	11	12	13	14	15	16	17	18	19	20	21	22	23
11 Child Prosocial Behavior T1	-.09	-												
12 Child Prosocial Behavior T2	-.22**	.47**	-											
13 Teacher Closeness T1	-.01	.16	.04	-										
14 Teacher Closeness T2	-.04	.13	.08	.59**	-									
15 Teacher Conflict T1	.12	-.28**	-.19*	-.21*	-.28**	-								
16 Teacher Conflict T2	.20*	-.21*	-.25**	-.27**	-.42**	.77**	-							
17 Teacher Dependency T1	.27**	-.12	-.15	.32**	.07	.58**	.45**	-						
18 Teacher Dependency T2	.23**	-.20*	-.15	.09	-.16	.47**	.60**	.67**	-					
19 Teacher Ext. Problems T1	.12	-.12	-.18	-.24**	-.33**	.76**	.73**	.40**	.43**	-				
20 Teacher Ext. Problems T2	.18	-.14	-.23*	-.19*	-.55**	.62**	.79**	.40**	.53**	.77**	-			
21 Teacher Int. Problems T1	.18*	-.11	-.10	-.16	-.32**	.48**	.43**	.48**	.36**	.35**	.32**	-		
22 Teacher Int. Problems T2	.29**	-.05	-.05	-.06	-.25**	.32**	.36**	.45**	.50**	.25**	.33**	.55**	-	
23 Teacher Prosocial Behavior T1	.03	.25**	.18*	.33**	.28**	-.68**	-.53**	-.29**	-.30**	-.66**	-.51**	-.43**	-.18*	-
24 Teacher Prosocial Behavior T2	-.06	.25**	.18*	.29**	.50**	-.65**	-.68**	-.40**	-.46**	-.61**	-.68**	-.53**	-.35**	.76**

Note. T1 is Time 1 (October 2012), T2 = Time 2 (April 2013); Student = Student report, Teacher = Teacher report.

\*  $p < .05$ .

\*\*  $p < .01$ .

**Table 3**  
Changes in fit between the baseline model and the trimmed model.

	Child-reported relationship quality and teacher-reported behavior			Teacher-reported relationship quality and child-reported behavior		
	Conflict	Closeness	Negative Expectations	Conflict	Closeness	Dependency
Fit of baseline model						
$\chi^2$ (df)	23.58 (6), $p < .001$	26.34 (6), $p < .001$	24.71 (6), $p < .001$	9.67 (6), $p = .140$	11.66 (6), $p = .070$	10.75 (6), $p = .096$
RMSEA	.114	.112	.117	.052	.065	.059
CFI	.942	.945	.940	.989	.977	.983
TLI	.786	.797	.782	.958	.917	.936
Changes in fit between baseline and trimmed model						
$\Delta$ SBS- $\chi^2$ ( $\Delta$ df)	5.42 (5), $p = .367$	8.97 (6), $p = .175$	5.37 (6), $p = .497$	9.45 (5), $p = .092$	4.05 (5), $p = .542$	6.80 (4), $p = .147$
$\Delta$ RMSEA	-.029	-.030	-.037	.005	-.023	-.001
$\Delta$ CFI	-.001	-.008	.004	-.015	.005	-.011
$\Delta$ TLI	.095	.088	.116	-.009	.048	.003

Note. For the RMSEA, a negative value equals an improved fit. For the CFI and TLI, a positive value equals an improvement in fit.

**Table 4**  
Stability paths, cross-lagged paths, and within-time correlations for the final models for child-reported relationship quality.

	Child-reported relationship quality and teacher-reported behavior					
	Conflict		Closeness		Negative expectations	
	<i>b</i> (SE)	$\beta$	<i>b</i> (SE)	$\beta$	<i>b</i> (SE)	$\beta$
Stability paths						
Relationship T1–T2	.40 (.09)**	.35	.66 (.06)**	.60	.45 (.07)**	.50
Externalizing Problems T1–T2	.69 (.07)**	.73	.68 (.07)**	.73	.69 (.07)**	.73
Internalizing Problems T1–T2	.52 (.10)**	.50	.51 (.10)**	.49	.50 (.10)**	.49
Prosocial Behavior T1–T2	.74 (.06)**	.75	.72 (.06)**	.74	.74 (.06)**	.75
Cross-lagged paths						
Relationship T1 – Externalizing T2	–	–	–	–	–	–
Relationship T1 – Internalizing T2	–	–	–	–	–	–
Relationship T1 – Prosocial T2	–	–	–	–	–	–
Externalizing T1 – Relationship T2	.52 (.18)**	.27	–	–	–	–
Internalizing T1 – Relationship T2	–	–	–	–	–	–
Prosocial T1 – Relationship T2	–	–	–	–	–	–
Within-time correlations						
Relationship – Externalizing T1	.10 (.03)**	.35	-.09 (.03)**	-.24	.03 (.02)	.09
Relationship – Internalizing T1	.03 (.02)	.13	-.06 (.03)	-.16	.02 (.03)	.07
Relationship – Prosocial T1	-.08 (.03)*	-.21	.15 (.05)**	.31	.01 (.03)	.03
Externalizing – Internalizing T1	.05 (.01)**	.35	.05 (.01)**	.35	.05 (.01)**	.35
Externalizing – Prosocial T1	-.15 (.03)**	-.66	-.15 (.03)**	-.66	-.14 (.03)**	-.66
Internalizing – Prosocial T1	-.09 (.02)**	-.43	-.09 (.02)**	-.43	-.09 (.02)**	-.43
Relationship – Externalizing T2	.03 (.02)	.19	-.03 (.02)	-.13	.01 (.01)	.05
Relationship – Internalizing T2	.03 (.03)	.11	-.02 (.03)	-.07	.03 (.02)	.17
Relationship – Prosocial T2	-.03 (.02)	-.12	.06 (.03)*	.22	-.04 (.02)	-.19
Externalizing – Internalizing T2	.02 (.01)	.20	.02 (.01)	.20	.02 (.01)	.20
Externalizing – Prosocial T2	-.05 (.01)**	-.53	-.05 (.01)**	-.53	-.05 (.01)**	-.53
Internalizing – Prosocial T2	-.03 (.01)	-.21	-.03 (.01)	-.21	-.03 (.01)	-.21

Notes. *b* = unstandardized coefficients,  $\beta$  = standardized coefficients.

\*  $p < .05$ .

\*\*  $p < .01$ .

**Table 3.** **Table 4** presents all coefficients for the final models. After trimming, the model for Conflict showed slightly improved fit. Therefore, the trimmed model was our final model (see Fig. 3; Table 4). The fit of the final model was acceptable,  $\chi^2$  (11) = 28.91,  $p = .002$ , RMSEA = 0.085, CFI = 0.941, TLI = 0.881. Stability coefficients of Conflict, Externalizing Problems, Internalizing Problems, and Prosocial Behavior ranged between 0.35 and 0.75 ( $ps < .001$ ). Teacher-reported Externalizing Problems at Time 1 were positively associated with child-reported Conflict at Time 2 ( $\beta = 0.27$ ,  $p = .001$ ). No other significant cross-lagged paths were found.

Regarding Closeness, the fit indices showed acceptable fit after model trimming,  $\chi^2$  (12) = 35.00,  $p < .001$ , RMSEA = 0.092, CFI = 0.937, TLI = 0.885. Therefore, the trimmed model was chosen as the final model (see Table 4). The stability coefficients of Closeness, Externalizing Problems, Internalizing Problems, and Prosocial Behavior ranged between 0.50 and 0.74 ( $ps < .001$ ). However, none of the cross-lagged paths was significant.

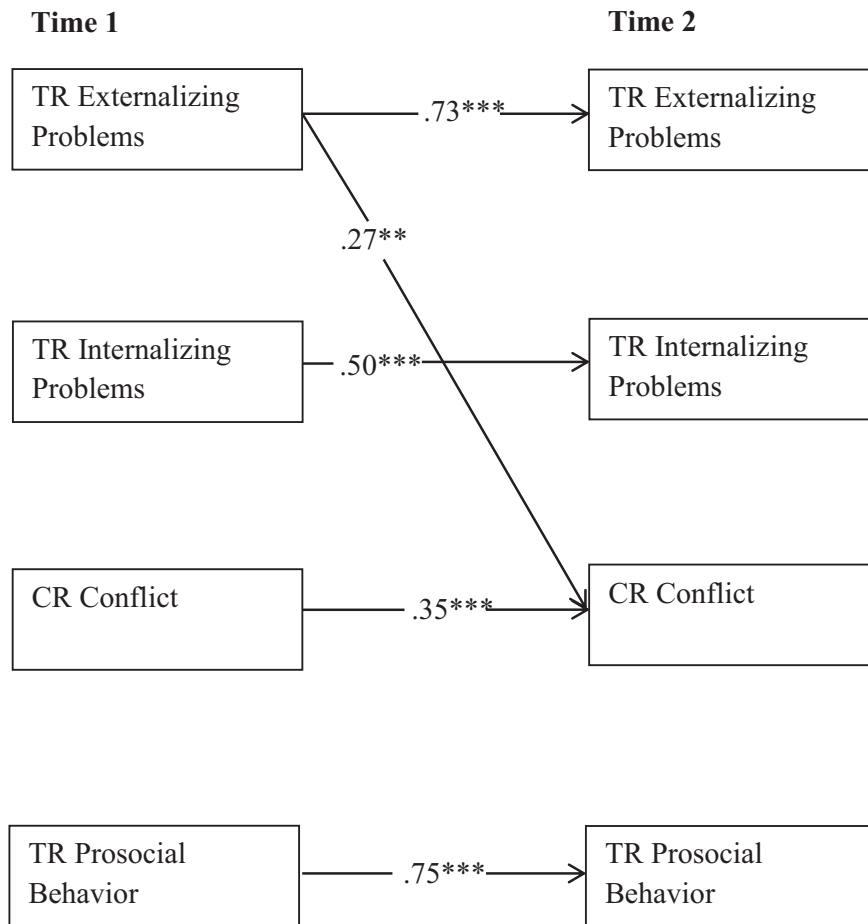


Fig. 3. Final cross-lagged model for child-reported (CR) Conflict and teacher-reported (TR) behavioral adjustment. Time 1 was October 2012 and Time 2 was April 2013. All path coefficients are standardized. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

The fit of the trimmed model for Negative Expectations was acceptable,  $\chi^2(12) = 29.54$ ,  $p = .003$ , RMSEA = 0.080, CFI = 0.944, TLI = 0.898. The stability coefficients of Negative Expectations, Externalizing Problems, Internalizing Problems, and Prosocial Behavior ranged between 0.49 and 0.75 ( $ps < .001$ ; see Table 4). However, no significant cross-lagged paths were found.

### 3.2.2. Teacher-reported TCRQ and child-reported behavior

Three models were estimated with teacher reports of relationship quality and child reports of behavioral adjustment. The fit indices of the baseline model and the changes in fit between the baseline model and the final trimmed model are presented in Table 3. Table 5 presents the coefficients for all final models. The fit of the trimmed model for Conflict was comparable to that of the baseline model (see Table 3) and therefore, this trimmed model was chosen as our final model (see Fig. 4, Table 5). The fit of the trimmed model was excellent,  $\chi^2(11) = 19.17$ ,  $p = .058$ , RMSEA = 0.057, CFI = 0.974, TLI = 0.949. The stability coefficients of Conflict, Externalizing Problems, Internalizing Problems, and Prosocial Behavior ranged between 0.47 and 0.69 ( $ps < .001$ ). Child-reported Externalizing Problems at Time 1 were positively associated with teacher-reported Conflict at Time 2 ( $\beta = 0.18$ ,  $p = .010$ ).

For Closeness, the fit of the trimmed model was comparable to that of the baseline model (see Table 3). The trimmed model (see Fig. 5; Table 5) had excellent model fit,  $\chi^2(11) = 15.41$ ,  $p = .165$ , RMSEA = 0.042, CFI = 0.982, TLI = 0.965. Stability coefficients of Closeness, Externalizing Problems, Internalizing Problems, and Prosocial Behavior ranged between 0.46 and 0.58 ( $ps < .001$ ). Child-reported Externalizing Problems at Time 1 were negatively associated with teacher-reported Closeness at Time 2 ( $\beta = -0.18$ ,  $p = .044$ ).

Model fit of the trimmed model for Dependency was comparable to that of the baseline model (see Table 3). The trimmed model (see Fig. 6; Table 5) had good model fit,  $\chi^2(10) = 17.54$ ,  $p = .063$ , RMSEA = 0.058, CFI = 0.972, TLI = 0.939. The stability coefficients of Dependency, Externalizing Problems, Internalizing Problems, and Prosocial Behavior ranged between 0.47 and 0.69. Teacher-reported Dependency at Time 1 was positively related to child-reported Externalizing Problems ( $\beta = 0.19$ ,  $p = .020$ ) and Internalizing Problems at Time 2 ( $\beta = 0.21$ ,  $p = .005$ ).

**Table 5**  
Stability paths, cross-lagged paths, and within-time correlations for the final models for teacher-reported relationship quality.

	Teacher-reported relationship quality and child-reported behavior					
	Conflict		Closeness		Dependency	
	<i>b</i> (SE)	$\beta$	<i>b</i> (SE)	$\beta$	<i>b</i> (SE)	$\beta$
Stability paths						
Relationship T1–T2	.70 (.06)**	.69	.58 (.07)**	.56	.70 (.07)**	.69
Externalizing Problems T1–T2	.53 (.07)**	.58	.53 (.07)**	.57	.49 (.07)**	.53
Internalizing Problems T1–T2	.54 (.07)**	.58	.54 (.07)**	.58	.52 (.07)**	.56
Prosocial Behavior T1–T2	.45 (.06)**	.47	.44 (.06)**	.46	.45 (.06)**	.47
Cross-lagged paths						
Relationship T1 – Externalizing T2	–	–	–	–	.05 (.02)*	.19
Relationship T1 – Internalizing T2	–	–	–	–	.08 (.03)**	.21
Relationship T1 – Prosocial T2	–	–	–	–	–	–
Externalizing T1 – Relationship T2	.70 (.27)**	.18	–.55 (.27)*	–.018	–	–
Internalizing T1 – Relationship T2	–	–	–	–	–	–
Prosocial T1 – Relationship T2	–	–	–	–	–	–
Within-time correlations						
Relationship – Externalizing T1	.10 (.03)**	0.34	–.03 (.02)	–.14	.04 (.03)	.14
Relationship – Internalizing T1	–.01 (.03)	–.03	.00 (.03)	–.00	.04 (.04)	.10
Relationship – Prosocial T1	–.10 (.04)**	–.26	.04 (.02)	.14	–.05 (.03)	–.14
Externalizing – Internalizing T1	.05 (.01)**	.42	.05 (.01)**	.42	.05 (.01)**	.42
Externalizing – Prosocial T1	–.04 (.01)**	–.36	–.04 (.01)**	–.35	–.04 (.01)**	–.36
Internalizing – Prosocial T1	–.02 (.01)*	–.14	–.02 (.01)*	–.14	–.02 (.01)*	–.14
Relationship – Externalizing T2	.03 (.02)*	.24	–.02 (.02)	–.14	.04 (.02)	.27
Relationship – Internalizing T2	.00 (0.01)	–.00	–.02 (.02)	–.07	–.01 (.03)	–.05
Relationship – Prosocial T2	–.04 (.02)*	–.17	.01 (.02)	.03	.01 (.02)	.02
Externalizing – Internalizing T2	.02 (.01)**	.34	.02 (.01)**	.34	.02 (.01)**	.30
Externalizing – Prosocial T2	–.02 (.01)**	–.26	–.02 (.01)**	–.27	–.02 (.01)**	–.27
Internalizing – Prosocial T2	–.02 (.01)*	–.16	–.02 (.01)*	–.17	–.02 (.01)*	–.16

Notes. *b* = unstandardized coefficients,  $\beta$  = standardized coefficients.

\*  $p < .05$ .

\*\*  $p < .01$ .

#### 4. Discussion

As cross-lagged studies with older children and studies that used both teacher and child reports are scarce, the present study used cross-lagged longitudinal modeling to examine associations between teacher-child relationship quality (conflict, closeness, and dependency or negative expectations) and children's behavioral adjustment (externalizing behavior, internalizing behavior, and prosocial behavior) in a sample of ethnic minority children, at the end of primary education. Different from previous cross-lagged studies, we used multiple informants (i.e., teacher and child) to assess both TCRQ and behavioral adjustment, resulting in two types of models: (1) models with child reports of the TCRQ and teacher reports of behavioral adjustment and (2) models with teacher reports of the TCRQ and child reports of behavioral adjustment. In general, more cross-lagged associations were found in the models with *teacher* reports of TCRQ. Moreover, the fit indices of the baseline models with *child*-reported TCRQ (but not the trimmed models) were rather poor. Therefore, it seems that the hypothesized transactional model applies more to the models with teacher-reported TCRQ and child-reported behavioral adjustment than to the models with child-reported TCRQ and teacher-reported behavioral adjustment. More research is needed to be able to understand these inconsistencies between models. For now, our results suggest that it is particularly important to include both teacher and child reports of TCRQ and behavioral adjustment to get an adequate view of transactional associations.

##### 4.1. Conflict and children's behavioral adjustment

Based on previous research with younger children, we expected to find consistent associations between conflict and externalizing behavior (e.g., Jerome et al., 2009; Zhang & Sun, 2011). In line with this hypothesis, both models (i.e., with teacher-reported TCRQ and child-reported TCRQ) showed that more externalizing behavior in the beginning of the school year was associated with a more conflictual teacher-child relationship at the end of the school year. However, unlike Roorda et al. (2014) and Zhang and Sun (2011), associations were not found the other way around (i.e., from conflict to externalizing behavior). More research is needed to find out whether this difference in findings is due to children's age (i.e., preschoolers in Roorda et al., 2014; Zhang & Sun, 2011; sixth graders in the present study) or to the specific at risk status of the present sample (i.e., minority students). Still, the fact that the association from externalizing behavior to conflict was found in both models, seems to indicate that older, ethnic minority children's externalizing behavior does influence the degree of conflict in the relationship with their teacher.

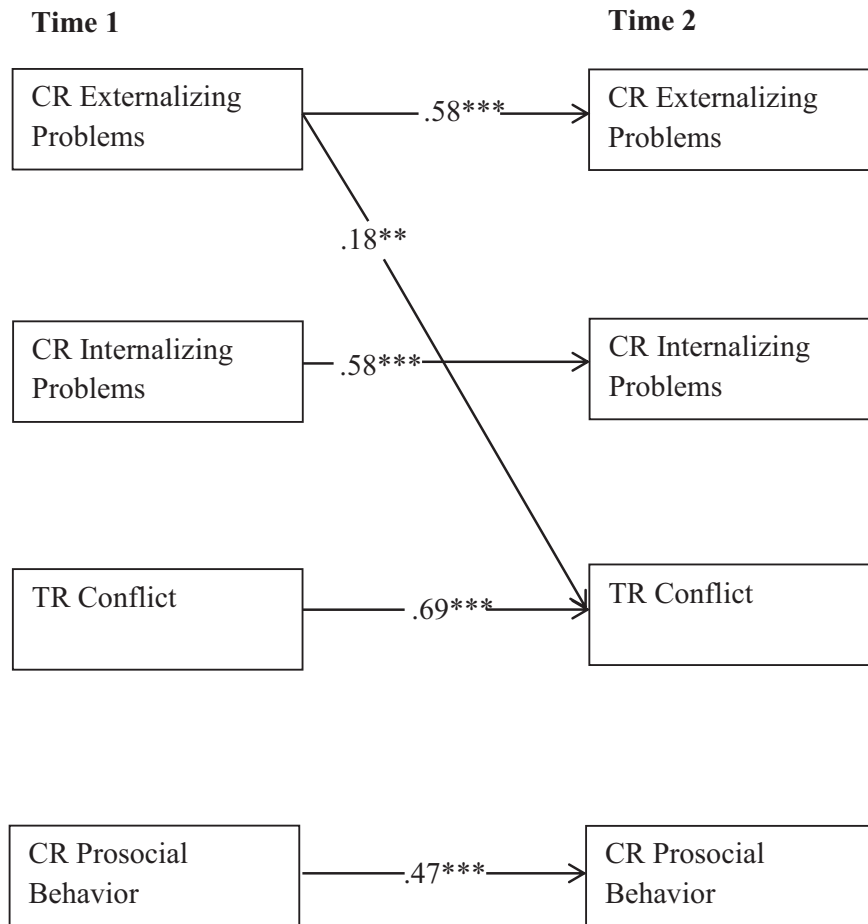


Fig. 4. Final cross-lagged model for teacher-reported (TR) Conflict and child-reported (CR) behavioral adjustment. Time 1 was October 2012 and Time 2 was April 2013. All path coefficients are standardized. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Furthermore, previous studies reported inconsistent findings with regard to internalizing behavior and conflict, with some studies finding positive associations (Jerome et al., 2009; Myers & Morris, 2009), others showing negative associations (Rudasill, 2011), or no significant associations at all (Arbeau et al., 2010; Mejia & Hoglund, 2016). In the present study, internalizing behavior and conflict might also have been positively associated for some children and negatively associated for others, which could explain why no significant cross-lagged associations were found when looking at the total sample. More research with person-centered analyses is needed to examine individual differences in associations between conflict and internalizing behavior (cf., O'Connor et al., 2012). Future research could also distinguish between different kinds of internalizing behavior and how these relate to conflict, as a recent study suggests that shyness is negatively associated with conflict, whereas anxiety is positively associated with conflict (Zee & Roorda, 2018).

#### 4.2. Closeness and children's behavioral adjustment

With regard to teacher-child closeness and children's behavioral adjustment, previous studies have found inconsistent results, with evidence for longitudinal associations being less strong than for conflict (e.g., Mejia & Hoglund, 2016; Zhang & Sun, 2011). The present research revealed one significant association between closeness and behavioral adjustment: When children reported more externalizing problems at the beginning of the school year, teachers reported less closeness with these children near the end of the school year. Similar to conflict, this association was not found from closeness at time 1 to externalizing behavior at time 2. Previous studies have suggested that closeness becomes more important for children's *academic* adjustment as they grow older (Murray, 2009; Roorda et al., 2011). In contrast, our findings appeared to suggest that this does not apply to children's *behavioral* adjustment, at least as far as ethnic minority children are concerned. Longitudinal studies that follow children throughout their school careers, however, are needed to further confirm this assumption. Furthermore, the association between externalizing behavior and closeness was only found when children reported on externalizing behavior and teachers on closeness. This finding seems to indicate that it is mainly the

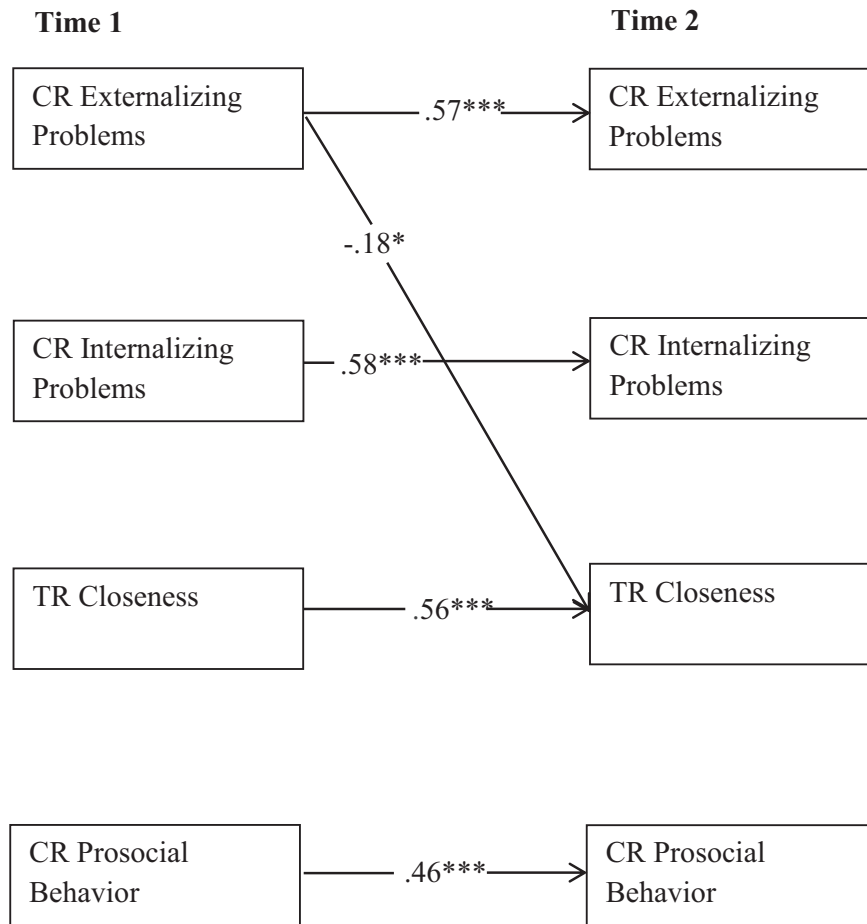


Fig. 5. Final cross-lagged model for teacher-reported (TR) Closeness and child-reported (CR) behavioral adjustment. Time 1 was October 2012 and Time 2 was April 2013. All path coefficients are standardized. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

teacher who experiences difficulties in the relationship with externalizing children and not the child. Teachers should be made aware that children with externalizing problems do not necessarily perceive the relationship as negative as they do. This might help teachers to form more positive representations of their relationships with those children.

#### 4.3. Dependency, negative expectations and children's behavioral adjustment

Previous cross-lagged studies with young children provided evidence that dependency is positively associated with internalizing behavior, both as a predictor (Mejia & Hoglund, 2016; Roorda et al., 2014), and as an outcome variable (Roorda et al., 2014). In the present study, we found that dependency at the beginning of the year was not only positively associated with child-reported internalizing problems but also with externalizing problems at the end of the year. Thus, in line with some previous studies (Bosman, Roorda, van der Veen, & Koomen, 2018; Zee et al., 2013), dependency appeared to be a relevant relationship dimension for older students as well. Moreover, dependency might even be more relevant for older than for younger children, as cross-lagged studies with young children did not find significant associations between dependency and externalizing behavior (Mejia & Hoglund, 2016; Roorda et al., 2014). Therefore, it seems advisable for future studies to take dependency into account when investigating relationships between teachers and older children. Furthermore, our findings seem to suggest that dependency is mostly a predictor of older, at risk children's behavioral adjustment, whereas closeness and conflict may mostly be the outcomes of these children's behavioral problems.

No significant associations were found between prosocial behavior and either closeness, conflict, or dependency, whereas previous studies did find some evidence that these variables were associated over time (Birch & Ladd, 1998; Henricsson & Rydell, 2004; Myers & Morris, 2009). More research is needed to find out whether this lack of significant associations is due to the fact that we used a cross-lagged model in the present study, or that we focused on older, ethnic minority children, or to possible other factors.

Finally, negative expectations is a relatively new dimension in the teacher-child relationship literature (Koomen & Jellesma, 2015), and has not been investigated in cross-lagged models before. Although previous cross-sectional studies found associations

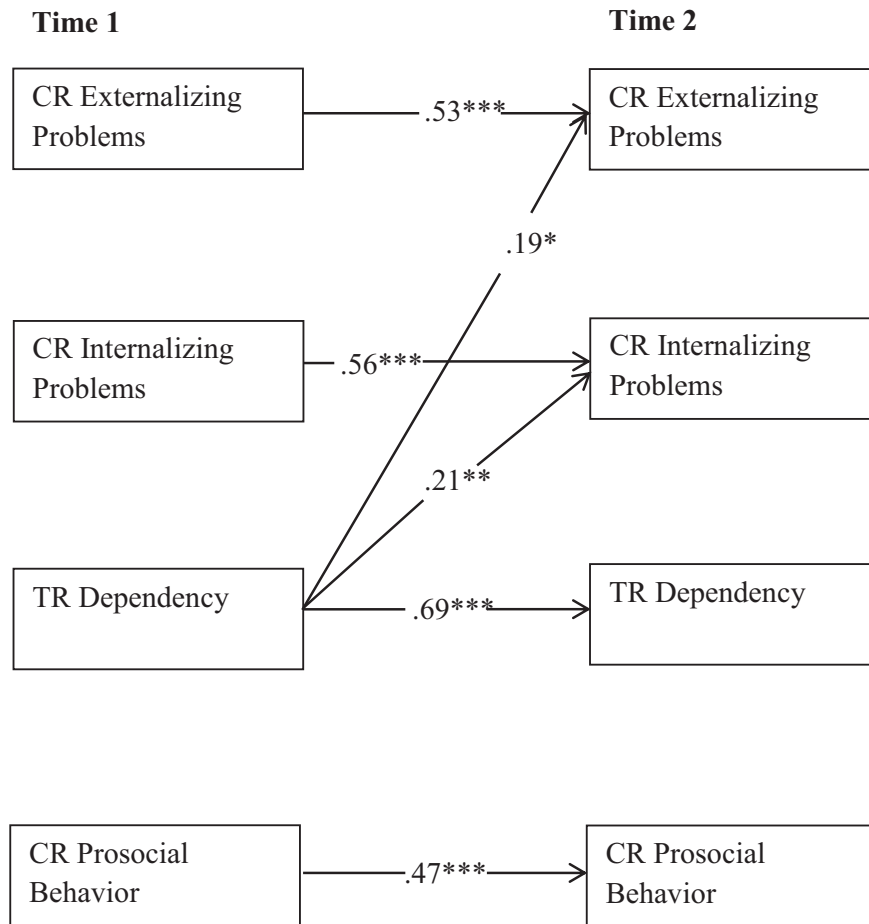


Fig. 6. Final cross-lagged model for teacher-reported (TR) Dependency and child-reported (CR) behavioral adjustment. Time 1 was October 2012 and Time 2 was April 2013. All path coefficients are standardized. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

between negative expectations and children's internalizing problems (Jellesma, Zee, & Koomen, 2015; Koomen & Jellesma, 2015), no significant associations between negative expectations and older children's behavioral adjustment were found in the present cross-lagged study. It might still be relevant, however, to include negative expectations in future studies, as associations might be found in other samples.

#### 4.4. Limitations and suggestions for future research

There are some limitations to the present study. First, our sample consisted only of ethnic minority children, so caution is required in generalization of these findings. Associations could be weaker in an ethnic majority sample, because these children tend to be less at risk for school maladjustment than ethnic minority children (Hamre & Pianta, 2001). In addition, ethnic minority children tend to share more negative relationships with their teachers than ethnic majority children (e.g., Hamre & Pianta, 2001; Thijs, Westhof, & Koomen, 2012). Furthermore, it is conceivable that ethnic majority children and ethnic minority children differ in the degree to which they value their relationships with their teacher. That is, there may be differences between cultures in the importance that is placed on maintaining good relationships with authority figures (see Phalet & Schönplflug, 2001; Thijs, 2011). Therefore, more research is definitely needed to examine to what extent the results of the present study generalize to ethnic majority samples.

Second, the internal consistencies of the child-reported scales for internalizing problems (time 1 and time 2) and prosocial behavior (time 2) were relatively low, although not unacceptable for research purposes (cf. DeVellis, 2003). Therefore, it is important to replicate the findings with child-reported emotional problems and prosocial behavior.

Third, although children were nested within classrooms and teachers filled out questionnaires for multiple students, our sample of teachers ( $N = 12$ ) was too small to conduct multilevel analyses (Hox, 2010). Yet, supplementary analyses with the type = complex command showed very similar results. Future studies should, however, strive to include more teachers to be able to investigate the impact of the nested structure of the data on cross-lagged associations.

Fourth, teacher ethnic background was not included in the main analyses, because this information was not available for all teachers. Supplementary analyses with teacher ethnic background included as a covariate yielded largely comparable results. Still, it



would be interesting for future studies to further examine the role of teachers' ethnic background. Fifth, in the present study we only used two measurement occasions, which made it impossible to distinguish between within-person and between-person variance (Hamaker, Kuiper, & Grasman, 2015) and, hence, our models did not enable strict conclusions about causality of influences. We therefore consider the present study as a first step in investigating bidirectional associations between TCRQ and behavioral adjustment for older children. Still, the cross-lagged study of Roorda et al. (2014), seems to suggest that results for closeness and dependency would have been largely the same with three measurement occasions, as both autoregressive and cross-lagged paths could be constrained to be equal from time 1 to time 2, and from time 2 to time 3. Likewise, the findings of Mejia and Hoglund (2016) also appear to suggest that associations would be the same in the first and second half of the school year. In contrast, associations between conflict and behavioral adjustment may have been different in the first than in the second half of the year (Doumen et al., 2008; Roorda et al., 2014). Therefore, especially with regard to conflict, it is advisable to measure TCRQ and behavioral adjustment at more than two occasions in future studies.

#### 4.5. Conclusion

Despite these limitations, the findings of the present study contribute to our knowledge of TCRQ and children's behavioral adjustment in several ways. First, dependency appeared to be a relevant relationship dimension for sixth grade, ethnic minority children's externalizing and internalizing problems. Teachers should therefore try to prevent the reinforcement of dependent behaviors in their students and exploit opportunities to promote their students' autonomy instead (cf., Roorda, Koomen, Thijs, & Oort, 2013) in order to decrease the escalation of externalizing and internalizing problems.

Second, externalizing behavior was associated with less teacher-reported closeness and more teacher-reported and child-reported conflict at the end of the year. Thus, older, ethnic minority children with high levels of externalizing behavior seem to be at risk for developing negative relationships with their teachers, which may result in a negative cycle in which externalizing problems and low quality teacher-child relationships reinforce each other over time (Doumen et al., 2008). To prevent such negative patterns, it seems important to intervene in children's externalizing problems early in the school year, for example by training them in anger management and self-regulation (Stipek & Miles, 2008). Furthermore, teachers might also need support in decreasing the level of conflict and increasing the level of closeness in their relationships with children with externalizing problems (Spilt, Koomen, Thijs, & Van der Leij, 2012) to break these kinds of negative reinforcing patterns.

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