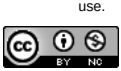
Vösgen-Nordloh, Meike; Leidig, Tatjana; Koomen, Helma; Casale, Gino; Hennemann, Thomas; Bolz, Tijs

How relevant is teacher- and student-perceived relationship quality for mental health in special and regular schools?

Empirische Sonderpädagogik 15 (2023) 3, S. 252-274



Kontakt / Contact:

pedocs
DIPF | Leibniz-Institut für Bildungsforschung und Bildungsinformation
Informationszentrum (IZ) Bildung
E-Mail: pedocs@dipf.de
Internet: www.pedocs.de

Empirische Sonderpädagogik, 2023.15:252-274
DOI https://doi.org/10.2440/003-0010
ISSN 1869-4845 (Print) · ISSN 1869-4934 (ebook)

How relevant is teacher- and student-perceived relationship quality for mental health in special and regular schools?

Meike Vösgen-Nordloh[a], Tatjana Leidig[a], Helma Koomen[b], Gino Casale[c], Thomas Hennemann[a] & Tijs Bolz[d]

[a] University of Cologne
[b] University of Amsterdam
[c] University of Wuppertal
[d] University of Oldenburg

Summary
Although current research indicates that sustainable dyadic teacher-student relationships (TSRs) can be socially protective against mental health problems, these findings refer primarily to teacher-perceived TSRs in regular schools (cf. Van Bergen et al., 2020). Therefore, this cross-sectional study examined how teacher- and student-perceived TSRs, as well as the disagreements of both perspectives, predict mental health problems in regular and special schools. A total of 228 students from German regular schools (M = 12.27), 245 students from German special schools for social, emotional, and behavioural difficulties (SEBD; M = 13.42), and their class teachers were surveyed about their perceived TSRs using the STRS (*closeness*, *conflict*, *dependency*; Pianta, 2001) and the SPARTS (*closeness*, *conflict*, *negative expectations*; Koomen & Jellesma, 2015). Teachers rated students' mental health problems using the SDQ (Goodman, 2005). Multilevel analyses showed that *dependency* and *conflict* were positively related to mental health problems in both school types, with the effect of *conflict* being lower in special schools. A positive association between *negative expectations* and mental health problems was only found in special schools. In both school types, mental health problems increased, the more *conflict*-perceptions differed (in that teachers rated *conflict* higher). In special schools, mental health problems decreased with a greater disagreement of *closeness*-perceptions (in that students rated *closeness* higher). These results indicate that reducing *conflict* and *dependency* may buffer mental health problems in both school types, and reducing *negative expectations* in special schools. Addressing disagreements in *conflict*-perceptions seems to be important for both school types and addressing *closeness*-disagreements for special schools.

Keywords: teacher-student relationships, mental health problems, regular schools, special schools

Wie wichtig ist die aus Lehrkraft- und Schüler:innensicht wahrgenommene Beziehungsqualität für psychische Gesundheit in Förder- und Regelschulen?

Zusammenfassung
Der bisherige Forschungsstand weist zwar darauf hin, dass eine tragfähige dyadische Lehrer*in-Schüler*in-Beziehung (LSB) ein sozialer Schutzfaktor gegenüber psychischen Problemen sein kann, bezieht sich dabei aber vornehmlich auf die lehrkraftbeurteilte LSB sowie auf das Regelschulsetting (zur Kritik vgl. Van Bergen et al., 2020). Deswegen untersuchte diese Querschnittsstudie, inwiefern die aus Lehrkraft- und Schüler*innensicht wahrgenommene LSB sowie die Nicht-Übereinstimmungen beider Perspektiven psychische Probleme in Regel- und Förderschulen vorhersagen. 228 Schüler*innen aus Regelschulen (M = 12.27) und 245 Schüler*innen aus Förderschulen mit dem Förderschwerpunkt Emotionale und soziale Entwicklung (FSP ESE; M = 13.42) sowie ihre Lehrkräfte wurden mit der STRS (*Nähe*, *Konflikt*, *Abhängigkeit*; Pianta, 2001) und SPARTS (*Nähe*, *Konflikt*, *Negative Erwartungen*; Koomen & Jellesma, 2015) zur wahrgenommenen LSB befragt. Lehrkräfte beurteilten die psychischen Probleme der Schüler*innen mittels SDQ (Goodman, 2005). Mehrebenenanalysen zeigten positive Zusammenhänge von *Abhängigkeit* sowie *Konflikt* mit psychischen Problemen, wobei der Effekt des *Konflikts* in Förderschulen geringer war. Ein positiver Zusammenhang zwischen *Negativen Erwartungen* und psychischen Problemen zeigte sich nur in Förderschulen. In beiden Schulformen stiegen psychische Probleme, umso stärker die Wahrnehmungen des *Konflikts* voneinander abwichen (insofern, als Lehrkräfte *Konflikt* höher einschätzten). In der Förderschule sanken psychische Probleme bei stärkerer *Nähe*-Wahrnehmungsabweichung (insofern, als Schüler*innen *Nähe* höher einschätzten). Die Ergebnisse deuten darauf hin, dass das Reduzieren von *Konflikt* und *Abhängigkeit* in beiden Schulformen und die Reduktion von *Negativen Erwartungen* insbesondere in Förderschulen einen mildernden Einfluss auf psychische Probleme haben kann. Die Auseinandersetzung mit *Konflikt*-Diskordanzen scheint relevant für beide Schulformen und die Auseinandersetzung mit *Nähe*-Diskordanzen bedeutsam für die Förderschule zu sein.

Schlüsselwörter: Lehrer*in-Schüler*in-Beziehung, psychische Probleme, Allgemeine Schule, Förderschule

Meta-analyses and systematic literature reviews provide evidence that affective-dyadic teacher-student relationships (TSRs) can either buffer or enhance the development and persistence of mental health problems (McGrath & Van Bergen, 2015; Nurmi, 2012; Roorda et al., 2021), but they refer primarily to teacher-rated TSR-quality in regular schools (cf. Van Bergen et al., 2020). Research is lacking in comparing the associations between teacher- and student-perceived TSRs and mental health problems across different school types. This is questionable as TSRs are essentially regarded as two-way interpersonal associations, which are, in turn, influenced by the different conditions of special and regular schools (Spilt et al., 2022).

Therefore, this study examined the extent to which student- and teacher-rated TSR dimensions, as well as the disagreements of their perspectives, are related to mental health problems and whether these associations differ in regular and special schools for students with social, emotional, and behavioural difficulties (SEBD). Such insights may shed light on the school type-specific impact of TSRs and provide an initial basis for pedagogical implications.

Development and conceptualisation of dyadic TSRs

According to developmental system theory (DST; Pianta et al., 2003), dyadic TSRs develop within the interplay of four core components: *Individual characteristics* of the teacher and student impact their *real-time interactions*. Regular interactions create *mental representations of TSRs*, including memories and emotions associated with interactions and—developing from them—beliefs or expectations about oneself, the other, and the self-other relationship. The interplay between individual characteristics, interactions, and mental-relationship representations is, in turn, embedded in and mutually interacts with *environmental influences* (Spilt et al., 2022).

Following attachment theory approaches, sustainable TSR representations of both the teacher and the student are formed if the teacher can provide a *secure base* and *safe haven* for the student (Verschueren, 2015). This means that the student experiences teacher support and care in times of stress (*safe haven* function) and can thus safely explore his or her (learning-)environment (*secure base* function).

In empirical studies (e.g., Roorda et al., 2021), such TSRs are mostly operationalised as high in *closeness* as well as low in *conflict* and *dependency*. Close relationships refer to warmth, positive communication, and trust. Conflictual relationships include quarrels, unpredictability, and unreliability. TSRs with high dependency are characterised by age-inappropriately clingy student behaviours (Pianta, 2001; Spilt et al., 2022).

Where *closeness* and *conflict* are psychometrically valid constructs for assessing both teachers' and students' perspectives (Koomen & Jellesma, 2015), student-rated *dependency* has only been partially confirmed empirically (e.g., Vervoort et al., 2015). Instead, Kommen and Jellesma (2015) identified the dimension *negative expectations*, which refers to "the lack of confidence in a teacher's availability and responsiveness" (p. 491) and indicates an insufficient use of the teacher as *safe haven* and *secure base* (Koomen & Jellesma, 2015).

Whether dyadic TSRs develop sustainably depends on the arrangement of the above-mentioned core components of the DST (Pianta et al., 2003). Regarding these components, this study focuses on (a) students' mental health problems and teacher-student interactions, (b) individual TSR representations and disagreements of TSR-perceptions, as well as (c) the environmental influences of special or regular schools on TSRs.

Students' mental health problems and teacher-student interactions

The DST indicates that the individual characteristics of relationship partners influence their interactions (Pianta et al., 2003). Within TSRs, it is especially students' mental-health problems that negatively affect this dynamic (e.g., Nurmi, 2012). Mental health problems can be described as "behavioral, emotional, and social problems" (Achenbach et al., 2016, p. 647). These problems are not to be understood as binary constructs (mentally ill vs. healthy) but as dimensions along continuums (McConaughy & Skiba, 1993). Empirically confirmed dimensions move along the continuum of externalising and internalising problems (Achenbach et al., 2016), which often occur comorbidly (Angold et al., 1999).

In school settings, high externalising problems are reflected in overactivity, concentration problems, impulsivity, aggressiveness, and rule-breaking behaviours. High levels of internalising problems are reflected in anxiety and depressive symptoms, such as social withdrawal or increased clinginess, hopelessness, and psychosomatic complaints (Castello, 2017).

These symptoms can impair students' abilities to establish and maintain sustainable TSRs on their own, rendering them particularly in need of teacher-initiated relationship building (Bolz, 2021). Unfortunately, the

respective students' behaviours and emotional expressions are likely to be experienced as very challenging and cause teacher responses that are not aligned with students' needs (McGrath & Van Bergen, 2015). For example, aggressive classroom disruptions may lead teachers to behave severely punitively, which, in turn, may be experienced as unfair by students (Vösgen et al., 2023). As the DST shows, such unfavourable interactions are likely to result in negative TSR representations (e.g., in high *conflict*) which, with longer duration, "become increasingly stable and are thus more difficult to change" (Spilt et al., 2022, p. 726).

Through this dynamic, burdened TSRs can become social risk factors that intensify mental health problems. Meanwhile, high-quality dyadic TSRs can break this dynamic and become social protective factors that prevent or hinder the development and persistence of mental health problems (McGrath & Van Bergen, 2015).

In this regard, longitudinal studies suggest that students' mental health problems can lead to an increase in teacher-rated *conflict* and *dependency* (Mejia & Hoglund, 2016, Pakarinen et al., 2018) and to a decrease in teacher-rated *closeness* (de Jong et al., 2018). Conversely, high *conflict* and *dependency* within TSRs can bring about an increase (Rudasill et al., 2014) and high *closeness* a decrease in mental health problems (Rudasill et al., 2014; Silver et al., 2005).

Teacher- and student TSR representations and their disagreements

The DST illustrates that "looking for causes of the development of interactions by referring to only one of the participants is usually not productive […]. The assumption of reciprocal interactions (and thus mutual influences) is basic to dynamic system theory" (Wubbels et al., 2015, p. 364–365). That is, mental TSR representations arise as real-time interactions are interpreted and associated with certain thoughts and emotions by both the teacher and the student (Pianta, 1999). When interpreting the interactional behaviours of a relationship partner, less objective but rather individual-subjective factors (e.g., personal attributes and beliefs) provide guidance (Schweer et al., 2017; Zee & Koomen, 2017). Thus, it can be assumed that due to the genuine individuality of teachers and students, their shared interactions may result in TSR representations that differ from one another and, in turn, act differently as risk or protective factors. That is, one and the same interrelated behaviour pattern of a teacher-student dyad can be experienced as relationship-enhancing by one side and relationship-hindering by the other (Van Bergen et al., 2020). In line with these assumptions, study findings indicate only weak or moderate correlations between teacher- and student-perceived TSRs (cf. Gregoriadis et al., 2022, p. 2–3 for a summary). Zee and Koomen (2017) found that "despite measuring mathematically equally constructs, individual students' and teachers' views of their mutual relationship were only moderately correlated" (p. 52).

Hence, to overcome the potential loss of information when only one perspective is considered, both teacher- and student-perceived TSRs should be studied (Gregoriadis et al., 2022). This can be achieved in two ways. Firstly, by considering the individual TSR-perspectives separately and secondly by considering the disagreement within the "relational unit" (Brinkworth et al., 2018, p. 25) of a teacher-student dyad.

Teachers' and students' individual perspectives are important because they act as guidance systems for future interactions: As TSR representations stabilise, they are likely to act as filters that increasingly shape interactional processes, thereby performing as self-fulfilling prophecies (Pianta, 1999). For example, if a teacher has internalised a conflictual relationship with a certain student, it is likely that he*she will expect corresponding student behaviour (e.g., externalising problems), regardless of the degree to which this behaviour is actually demonstrated.

Disagreements between teacher- and student-perceived TSRs are important because biased negative perceptions of interactional processes and social cues are related to, and can intensify, mental health problems (Castello, 2017). Furthermore, a shared picture of the TSR is a prerequisite for adequate intervention planning, whereas disagreements between teachers and students may lead to inappropriate planning (De Los Reyes et al., 2022).

The few studies that have explored student- and teacher-rated TSR-quality disclosed that the respective perspectives can be differently related to mental health problems. Some research indicates that student-rated TSR-quality is significantly linked to externalising (i.e., disobedience; Breeman et al., 2018) or internalising problems (i.e., depression; Murray & Zvoch, 2011), whereas teacher-rated TSR-quality is not. Conversely, Zee et al. (2020) showed that only teacher-rated and not student-rated TSR quality was significantly associated with externalising problems (i.e., ADHD).

Regarding disagreements of teachers' and students' TSR representations, Decker et al. (2007) used the 50% percentiles of TSR-instruments to classify students and teachers into groups with high or low TSR-quality. They then developed a three-level TSR-pattern scale representing negative agreement (both low in TSR-quality), disagreement (one high and one low), and positive agreement (both high). This pattern was significantly and negatively related to school behaviour. However, the scale assumes that negative agreements are worse than disagreements within TSRs. Contrary to this assumption, in a recent study, we showed that internalising problems of special school students were significantly higher when *conflict* was rated high by teachers but low by students (Vösgen et al., 2023).

Dyadic TSRs in regular and special schools

The DST points out that the association between mental health problems, interactions, and TSR representations is embedded in environmental influences (Pianta, 2003). Therefore, it can be assumed that how dyadic TSRs become risk or protective factors may depend on the school context in which they occur.

In German[1] primary and secondary schools[2], students with special needs attend either inclusive regular schools or exclusive special schools that are specified for certain special needs. Concerning mental health problems, special schools for students with SEBD play a particularly important role. The schools are for students who are considered massively impaired in their emotional and social development and, therefore, cannot be supported in regular schools without specific help (KMK, 2000). However, the identification of SEBD is based on educationally oriented state-specific guidelines that do not align with psychologically oriented diagnoses (Wolf & Dietze, 2022). In Germany, the proportion of students with SEBD is 1.4% (KMK, 2022), whereas the overall rate of mental health problems is approximately 17% (e.g., Klipker et al., 2018). Nonetheless, the rate of mental health problems is remarkably high in special schools for students with SEBD (85%; Hennemann et al., 2020).

Accordingly, establishing sustainable dyadic TSRs that protect against the development and persistence of mental health problems is highly relevant for both special and regular schools. However, this may be easier in special schools, as, first, the specific professionalisation of special education teachers and, second, structural organisations, such as small classes, may facilitate better opportunities for relationship building (cf. Zdoupas, 2022, p. 79).

1 In this paragraph, the German school setting is explained since the study was conducted in German schools.

2 In the German states of North Rhine-Westphalia and Lower Saxony (where the present study was conducted), elementary schools comprise grades 1 to 4, and secondary schools grades 5 to 10 or 13, depending on the type of graduation.

Concerning comparisons of dyadic TSRs in regular and special schools, studies indicate that effects of affective TSRs are higher in special schools. Little and Kobak (2003) showed that for special school students with SEBD, but not for regular school students, higher *emotional security to the teacher* was associated with less of a decrease in self-esteem in response to negative teacher events. Zdoupas and Laubenstein (2023) illustrated that *care* is significantly higher associated with social inclusion for special school students as compared to students with SEBD in regular schools.

Research questions

In summary, symptomatic expressions of students' mental health problems and teachers' reactions to them affect teacher-student interactions and the TSR representations that result from them. Whether these representations become protective or risk factors may depend on how they are perceived individually by teachers and students and whether both perspectives disagree, and, furthermore, on the way they develop within diverging conditions of special and regular schools.

Hence, it seems important to analyse the association between dyadic TSR-quality and mental health problems in special and regular schools, considering teacher- and student-perspectives as well as their disagreements. To the best of our knowledge, this research interest was not yet addressed in previous studies. Therefore, we pursue the following research questions:

1. To what extent are teacher-rated TSR-dimensions (*closeness*, *conflict*, and *dependency*) and student-rated TSR-dimensions (*closeness*, *conflict*, and *negative expectations*) predictors of teacher-rated mental health problems in regular and special schools? Do these associations differ between these two types of schools?
2. To what extent do the type of disagreements between teacher- and student-perceived TSR-*closeness* and -*conflict* (two groups: student-ratings > teacher-ratings vs. teacher-ratings > student-ratings) as well as the degree of their disagreements predict teacher-rated mental health problems in regular and special schools? Do these associations differ between these two types of schools?

Against the background of the studies mentioned above, it can be expected that teacher-rated *closeness* is negatively related, and teacher-rated *conflict* as well as *dependency* are positively related to teacher-rated mental health problems. The remaining research questions are exploratory because of the limited state of research.

Method

Sample and Procedure

As part of sample recruitment, schools were sent written information about the aims and procedures of the study. Once class teachers decided to participate and this was approved by the schools' principals, we provided the schools with consent forms and information letters for parents or guardians. For all students who provided written consent, IDs were generated so that pseudonymity and matching of teacher-student dyads were ensured.

Trained project members surveyed the students between November 2020 and December 2022. Teacher ratings of the relationship and mental health problems were completed location-independent, either online or via a paper-pencil sheet.

The convenience sample comprises a subsample of a larger research project on dyadic TSRs in German schools.

The regular school sample comprises 228 students (M = 12.27 years old, SD = 2.74; 50.7% male, 48.9% female, 0.4% diverse) from 15 classes with 15 corresponding teachers (68.6% female) from nine German

regular schools[3], including grades 3–10. *N* = 16 regular school students (7%) were diagnosed with special needs (*n* = 4 SEBD; *n* = 12 learning difficulties).

The special school sample comprises 245 students (*M* = 13.42 years old, *SD* = 2.19; 60.2% male, 34.4% female, 5.3% diverse) distributed among 51 classes, each with a corresponding teacher (83.1% female), from 17 German special schools for students with SEBD, spanning grades 3–10. In addition to SEBD, *n* = 81 special school students (33.1%) were diagnosed with learning difficulties.

Measures

Teachers' perspectives on dyadic TSRs were assessed using the German adaptation (Bolz et al., 2017) of the *Student-Teacher Relationship Scale* (STRS; Pianta, 2001). The STRS comprises three scales that measure the perceived extent of *closeness* (11 Items, e.g. *If upset, this child will seek comfort from me*), *conflict* (12 items, e.g. *This child and I always seem to be struggling with each other*) and *dependency* (5 items, e.g. *This child is overly dependent on me*) within dyadic TSRs. The teachers rated the 28 items for each student participating in their class on a five-point Likert scale ranging from 1 = *not true at all* to 5 = *completely true*. The STRS is an internationally widely used and psychometrically well-tested instrument (e.g., Koomen et al., 2012). In Germany, only the two-factor solution of *closeness* and *conflict* has been confirmed psychometrically (Glüer, 2013). In the present study, the internal consistencies of the scales are Cronbach's α = .88 and α = .84 for *closeness*, α = .87 and α = .88 for *conflict*, and α = .46 and α = .70 for *dependency* for the regular and special school samples, respectively.

Students' perspectives on dyadic TSRs were assessed using the German adaptation of the *Student Perception of Affective Relationship with Teacher Scale* (SPARTS; Leidig et al., 2019). It measures the extent of *closeness* (8 items, e.g., *When I feel uncomfortable, I go to my teacher for help and comfort*), *conflict* (10 items, e.g., *I easily have quarrels with my teacher*), and *negative expectations* (7 items, e.g., *I wish my teacher would listen to me better if I have something to say or tell*) within dyadic TSRs. Regarding the perceived TSR with their class teacher, students rated 25 items on a five-point Likert scale ranging from 1 = *No, this is not true* to 5 = *Yes, this is true*. For a Dutch sample from grades four to six, Koomen and Jellesma (2015) confirmed a three-factorial solution. In Germany, the SPARTS is currently being validated. In the present study, the internal consistencies of the scales were Cronbach's α = .88 and α = .86 for *closeness*, α = .80 and α = .83 for *conflict*, and α = .65 and α = .70 for *negative expectations* for the regular- and special school samples, respectively.

Mental health problems were assessed from the teachers' perspectives using the German version of the *Strength and Difficulties Questionnaire* (SDQ-Deu; Goodman, 2005). The questionnaire comprises 25 items, of which 5 each cover one scale. Scales 1 to 4 can be computed as a total difficulty scale covering externalising problems (*hyperactivity* and *conduct problems*) and internalising problems (*emotional problems* and *peer problems*). The German version of the SDQ was validated with acceptable psychometric values (de Vries et al., 2017). In the present study, the internal consistencies of the total difficulty scale were Cronbach's α = .84 and α = .82 for the regular- and special-school samples, respectively.

Data analyses

Data were prepared using the IBM statistical program SPSS (version 29.0) and analysed using R.

Before answering research questions (1) and (2), we calculated descriptive statistics and tested for measurement invariance of

3 *N* = 109 students (47.8%) from primary schools (Grundschule) and *n* = 119 students (52.2%) from secondary schools (*n* = 77 Realschule, *n* = 20 Gymnasium, *n* = 22 Gesamtschule) participated.

the SDQ across school types. For descriptive statistics, the kurtosis, skewness, means, standard deviations, and correlations of the metric variables were calculated for regular and special schools. Measurement invariance analyses were performed in R using the *lavaan* (Rosseel, 2012) and *psych* (Revelle, 2020) packages. First, we used confirmatory factor analyses to identify the best-fitting model, with the 4-factor solution (problem scales 1 to 4) fitting best in our sample (CFI = .986, TLI = .984, RMSEA = .069). Because item 22 (*Steals from home, school, or elsewhere*) showed very strong floor effects in both samples, for this item, item levels 1 and 2 were combined for the measurement-invariance analysis. We then tested the 4-factor model stepwise in both samples and added further restrictions per step (testing for configural, weak, strong, and strict invariance). All model tests withstood group comparisons and showed a good model fit (Cheung & Rensvold, 2002). Thus, we can assume that the strict invariance measurement for the SDQ in our sample and the group comparative analysis procedures using the SDQ were permissible.

To answer the research questions, several multilevel analyses were performed as the data is based on a nested structure (students in classes). This was done in R using the package *lme4* (Bates et al., 2015). Ten models were run with *teacher-rated mental health problems* (SDQ total score) as dependent variables. First, a null-model (nesting in classes as random effect) and a demographic-model (nesting in classes as random effect and *age* as well as *school type* as fixed effects) were estimated.

To answer research question (1), we calculated four random intercept models (two student-models and two teacher-models). In these, the nesting in classes were included as random effects and demographic information (*age*, *school type*) were included as fixed effects. Additionally, either student-rated TSR-dimensions and their interactions with *school type* (student-models) or teacher-rated TSR-dimensions and their interactions with *school type* (teacher-models) were included as fixed effects. We calculated each model with dummy-coding 0 = regular school, 1 = special school (student-model-RES, teacher-model-RES) as well as with the dummy-coding 0 = special schools, 1 = regular schools (student-model-SES, teacher-model-SES). Relations between TSR-dimensions and mental-health problems refer to regular schools if regular schools are dummy-coded 0. They refer to special schools if special schools are dummy-coded 0 (cf. italicized variables in Table 4).

For research question (2), we created disagreement-groups and disagreement-scales. To create disagreement-groups, the teacher-rated *closeness* and *conflict* means were subtracted from the student-rated *closeness* and *conflict* means. Discrepancy values < 0 indicate that the student rates *closeness* or *conflict* higher than the teacher (*s>t closeness* and *s>t conflict*), whereas values > 0 indicate that the teacher rates *closeness* or *conflict* higher than the student (*t>s closeness* and *t>s conflict*). To create the disagreement-scales, the discrepancy values were converted into absolute values (the higher the value, the greater the degree of discrepancy between student- and teacher-ratings). Table 1 shows the distribution of the disagreement-groups and the values of the disagreement-scales within regular and special schools, respectively.

The table is to be understood as follows: The first column lists the different disagreement-groups. The next two columns list how many teacher-student dyads belong to the disagreement-groups in each type of school. For example, the *s>t closeness* group includes *n* = 126 (55.3%) teacher-student dyads from regular schools and *n* = 136 (55.5%) teacher-student dyads from special schools. The other two columns report the degree of disagreements (disagreement-scale) within the different disagreement-groups. For example, for the *s>t closeness* group in regular schools, the lowest disagreement is 0.01, the highest is

2.48, and the mean is 0.77. That is, students rate *closeness* between 0.01 and 2.48 and on average 0.77 scale points higher than teachers.

We then calculated four random intercept models (two conflict-models and two closeness-models). In these, the nesting in classes were included as random effects and demographic information (*age*, *school type*) were included as fixed effects. In the conflict-models, we additionally included six fixed effects: the *disagreement-group conflict*, the *disagreement-scale conflict*, the interaction between the disagreement-group and -scale (*disagreement-group conflict* x *disagreement-scale conflict*) and the interactions between school type and each of latter three variables (*disagreement-group conflict* x *school type*; *disagreement-scale conflict* x *school type*; *disagreement-group conflict* x *disagreement-scale conflict* x *school type*). The same was done for the closeness-models with *disagreement-group closeness* and *disagreement-scale closeness*.

The interaction effect *disagreement-group* x *disagreement-scale* shows whether the association between the degree of disagreements and mental health problems differs between the two disagreement-groups (student-ratings > teacher-ratings vs. teacher-ratings > student-ratings). The interaction effects with school type show whether the calculated relations within the models differ between regular and special schools.

Again, we calculated models with dummy-coding 0 = regular schools, 1 = special schools (conflict-model-RES, closeness-model-RES), and conversely, 0 = special schools, 1 = regular schools (conflict-model-SES, closeness-model-SES). Associations between *disagreement-group*, *disagreement-scale*, *disagreement-group x disagreement-scale* and *mental health problems* refer to regular schools if regular schools are dummy coded 0. They refer to special schools if special schools are dummy-coded 0 (cf. italicized variables in Table 5).

To compare the models, R^2-marginal (variance explained by fixed effects) and R^2-conditional (variance explained by fixed and random effects; Nakagawa & Schielzeth, 2013) are reported for each model.

Results

Descriptive statistics

The skewness, kurtosis, means, standard deviations, and correlations of TSRs and mental health problems are presented in Tables 2 and 3 for the regular and special school samples, respectively.

Null-model and demographic-model

The null-model demonstrates that 46% (ICC = 0.46) of the variance in mental health problems was explained by nesting in class-

Table 1
Disagreement-groups and disagreement-scales of student- and teacher-rated closeness and conflict in regular and special schools.

	disagreement-groups		disagreement-scales	
	n (%)		range, *M*(*SD*)	
	regular schools	special schools	regular schools	special schools
s>t closeness	126 (55.3)	136 (55.5)	0.01–2.48, 0.77(0.59)	0.01–2.39, 0.79(0.58)
t>s closeness	102 (44.7)	109 (44.5)	0.02–3.18, 0.83(0.76)	0.01–2.88, 0.81(0.63)
s>t conflict	168 (73.7)	117 (47.8)	0.01–2.63, 0.69(0.59)	0.01–2.80, 0.73(0.54)
t>s conflict	60 (26.3)	128 (55.2)	0.02–2.31, 0.42(0.47)	0.02–2.57, 0.83(0.67)

Table 2
Skewness, kurtosis, means, standard deviations and correlations of TSR-dimensions and mental health problems in the regular-school sample.

	skewness (*SE* = 0.16)	kurtosis (*SE* = 0.32)	*M* (*SD*)	1	2	3	4	5	6
1 t-r closeness	-0.33	-0.67	3.42 (0.82)						
2 t-r conflict	1.72	2.90	1.48 (0.59)	-.47***					
3 t-r dependency	1.23	1.43	1.52 (0.49)	.11	.34***				
4 s-r closeness	-0.50	-0.64	3.47 (1.04)	.43***	-.34***	.15*			
5 s-r conflict	1.02	0.35	1.88 (0.73)	-.17**	.36***	.08	-.55***		
6 s-r negative expectations	1.17	1.48	1.84 (0.65)	-.02	.10	.04	-.35***	.62***	
7 t-r mental-health problems	1.10	0.88	6.32 (5.37)	-.41***	.65***	.29***	-.15*	.22***	.06

Note. t-r = teacher-rated. s-r = student-rated. *p < .05; **p < .01; ***p < .001

Table 3
Skewness, kurtosis, means, standard deviations and correlations of TSR-dimensions and mental health problems in the special-school sample

	skewness (*SE* = 0.16)	kurtosis (*SE* = 0.31)	*M* (*SD*)	1	2	3	4	5	6
1 t-r closeness	-0.36	-0.25	3.35 (0.74)						
2 t-r conflict	0.25	-0.91	2.43 (0.90)	-0.28***					
3 t-r dependency	0.68	-0.11	2.13 (0.84)	0.27***	0.39***				
4 s-r closeness	-0.45	-0.46	3.43 (0.98)	0.35***	-0.24***	0.01			
5 s-r conflict	0.67	-0.16	2.35 (0.89)	-0.10	0.40***	0.18*	-0.48***		
6 s-r negative expectations	1.06	1.32	1.95 (0.75)	-0.01	0.24***	0.23***	-0.20**	0.63***	
7 t-r mental-health problems	0.16	-0.59	14.52 (6.88)	-0.09	0.55***	0.43***	-0.13*	0.23***	0.23***

Note. t-r = teacher-rated. s-r = student-rated. *p < .05; **p < .01; ***p < .001

es. The demographic-model shows that *age* was not a significant predictor of mental health problems and that mental health problems were, on average, 8.15 scale points higher for special school students than for regular school students (Table 4).

Student-perceived TSRs and mental health problems

The student-models (Table 4) indicate that *conflict* was (marginally) significantly positively related to mental health problems within regular schools (B = 0.19, β = .22, p < .05) and special schools (B = 0.11, β = .12, p = .07) and that these associations did not significantly differ between the two school types. *Closeness* was not a significant predictor of mental health problems in either school type. *Negative expectations* were marginally significantly associated with mental health problems in special schools only (B = 0.17, β = .12, p = .05), with a stronger association as compared to regular schools (B = 0.28, β = .19, p = .05). Figure 1 illustrates this interaction effect.

The student-models each explained 33.6% of the variance in mental health problems (R^2-marginal = 0.336)

Teacher-perceived TSRs and mental health problems

The teacher-models (Table 4) showed that in regular schools (B = 0.41, β = .60, p < .001) as well as in special schools (B = 0.27,

Table 4

Multilevel analyses with teacher- and student-perceived TSR-dimensions as predictors and students' mental health problems as dependent variable.

	dependent variable: teacher-rated mental health problems										
	null-model	demographic-model		student-model-RES		student-model-SES		teacher-model-RES		teacher-model-SES	
	B (*SE*)	*B* (*SE*)	*β*	*B* (*SE*)	*β*	*B* (*SE*)	*β*	*B* (*SE*)	*β*	*B* (*SE*)	*β*
Intercept	**13.02 (0.65)*** **	**6.64 (0.95)*** **		**7.15 (0.96)*** **		**14.43 (0.58)*** **		**9.59 (0.68)*** **		**12.49 (0.44)*** **	
age[b]		0.14 (0.19)	.05	0.13 (0.19)	.04	0.13 (0.19)	.04	0.21 (0.13)	.07	0.21 (0.13)	.07
school type[a]		**8.15 (1.12)*** **		**7.28 (1.13)*** **		**-7.28 (1.13)*** **		**2.90 (0.82)*** **		**-2.90 (0.82)*** **	
s-r conflict[b]				**0.19 (0.08)***	**.22***	**0.11 (0.06)**[†]	**.12**[†]				
s-r closeness[b]				-0.06 (0.06)	-.06	-0.04 (0.06)	.04				
s-r negative expectations[b]				-0.11 (0.11)	-.07	**0.17 (0.10)**[†]	**.12**[†]				
s-r conflict[b] x school type				-0.08 (0.10)	-.10	0.08 (0.10)	.10				
s-r closeness[b] x school type				0.02 (0.08)	.02	-0.02 (0.08)	-.02				
s-r negative ex.[b] x school type				**0.28 (0.15)**[†]	**.19**[†]	**-0.28 (0.15)**[†]	**-.19**[†]				
t-r conflict[b]								**0.41 (0.06)*** **	**.60*** **	**0.27 (0.04)*** **	**.40*** **
t-r closeness[b]								-0.08 (0.05)	-.09	-0.03 (0.05)	-.03
t-r dependency[b]								**0.34 (0.16)***	**.17***	**0.40 (0.09)*** **	**.20*** **
t-r conflict[b] x school type								**-0.14 (0.07)***	**-.20***	**0.14 (0.07)***	**.20***
t-r closeness[b] x school type								0.05 (0.06)	.06	-0.05 (0.06)	-.06
t-r dependency[b] x school type								0.06 (0.19)	.03	-0.06 (0.19)	-.03
ICC	0.46	0.27		0.28		0.28		0.15		0.15	0.15
R^2-marginal	0.000	0.300		0.336		0.336		0.561		0.561	0.561
R^2-conditional	0.456	0.487		0.523		0.523		0.625		0.625	0.625

Note. t-r = teacher-rated. s-r = student-rated. [a] school type was dummy coded (0 = regular school, 1 = special school for student-model-RES and teacher-model-RES; 0 = special school, 1 = regular school for student-model-SES and teacher-model-SES) [b] Variable was mean centred. *Italics* = correlations refer to the school type that is dummy coded 0. *p < .05; **p < .01; ***p < .001; [†]p < .08

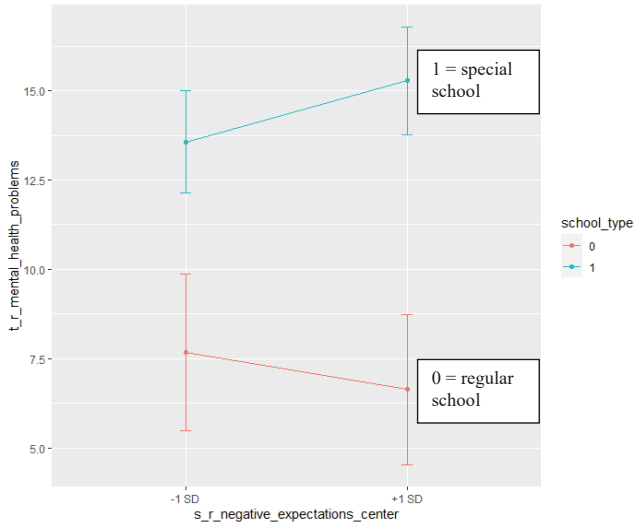


Figure 1
Interaction between student-rated negative expectations and school type as predictor of mental health problems.

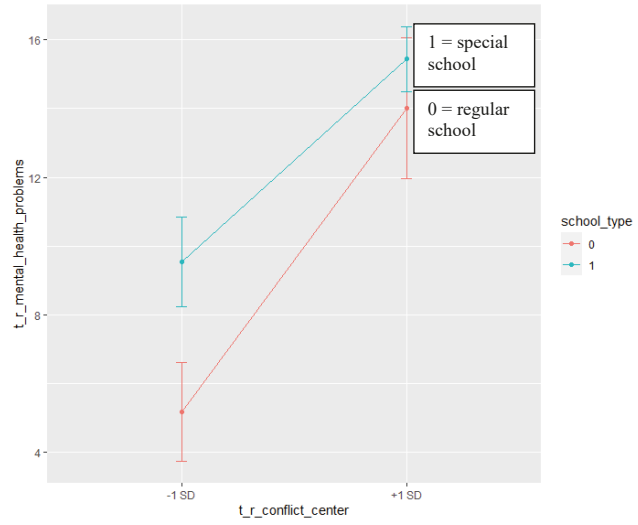


Figure 2
Interaction between teacher-rated conflict and school type as predictor of mental health problems.

β = .40, p < .001), *conflict* was significantly positively associated with mental health problems. These associations were significantly lower in special schools (B = -0.14, β = -.20, p < .05). Figure 2 illustrates this interaction effect.

Table 5

Multilevel analyses with disagreements of teacher- and student-perceived closeness and conflict as predictors and students' mental health problems as dependent variable.

	dependent variable: teacher-rated mental health problems							
	conflict-model-RES		conflict-model-SES		closeness-model-RES		closeness-model-SES	
	B (*SE*)	*β*	*B* (*SE*)	*β*	*B* (*SE*)	*β*	*B* (*SE*)	*β*
Intercept	**5.57 (0.89)*** **		**13.47 (0.66)*** **		**7.06 (1.02)*** **		**14.39 (0.67)*** **	
age	0.18 (0.18)	.06	0.18 (0.18)	.06	0.15 (0.19)	.05	0.15(0.19)	.05
school type [a]	**7.91 (1.13)*** **		**-7.91 (1.13)*** **		**7.33 (1.23)*** **		**-7.33 (1.23)*** **	
disagreement-group conflict [a]	**5.68 (0.93)*** **		**2.09 (0.76)** **					
disagreement-scale conflict	-0.01(0.74)	.00	0.01 (0.97)	.00				
disagreement-group conflict [a] *x disagreement-scale conflict*	**5.76 (1.69)** **	**.46*** **	**2.72 (1.20)* **	**.22* **				
disagreement-group conflict [a] x school type [a]	**-3.59 (1.20)** **	**-.48** **	**3.59 (1.20)** **	**.48** **				
disagreement-scale conflict x school type [a]	0.02 (1.22)	.00	-0.02(1.22)	.00				
disagreement-group conflict [a] x disagreement-scale conflict x school type [a]	-3.04 (2.07)	-.24	3.04 (2.07)	.24				
disagreement-group closeness [a]					-0.96 (0.87)		0.86 (0.78)	
disagreement-scale closeness					0.24 (0.87)	.02	-0.78 (0.89)	-.07
disagreement-group closeness [a] *x disagreement-scale closeness*					-1.70 (1.19)	-.15	0.22 (1.30)	.02
disagreement-group closeness [a] x school type [a]					1.82 (1.73)	.25	-1.82 (1.17)	-.25
disagreement-scale closeness x school type [a]					-1.01 (1.24)	-.09	1.01 (1.24)	.09
disagreement-group closeness [a] x disagreement-scale closeness x school type [a]					1.92 (1.77)	.16	-1.92 (1.77)	-.16
ICC	0.25		0.25		0.26		0.26	
R^2-marginal	0.376		0.376		0.308		0.308	
R^2-conditional	0.533		0.533		0.490		0.490	

Note. [a] Variable was dummy coded (0 = regular school, 1 = special school for conflict-model-RES and closeness-model-RES; 0 = special school, 1 = regular school for conflict- model-SES and closeness-model-SES; 0 = student-ratings > teacher-ratings, 1 = teacher-ratings > student-ratings) [b] Variable was mean centred. *Italics* = correlations refer to the school type that is dummy coded 0. *p < .05; **p < .01; ***p <

Closeness was not a significant predictor for mental health problems in either regular or special schools. *Dependency* was a significant positive predictor in both school types (B = .34, β = .17, $p < .05$, for regular schools; B = .40, β = .20, $p < .001$, for special schools), with no significant differences between school types.

The teacher-models each explained 56.1% of the variance in mental health problems (R^2-marginal = 0.561)

Disagreements of TSR-conflict and mental health problems

The conflict-models (Table 5) showed that within regular and special schools, belonging to the group *t>s conflict* was significantly positively associated with mental health problems (B = 5.68, $p < .001$ for regular schools; B = 2.09, $p < .01$ for special schools). This relation was significantly higher in regular schools (B = 3.59, β = .48, $p < .001$). Thus, in regular schools, mental health problems increased by 5.68 scale points when teachers rated *conflict* higher than students (as compared to the group in which students rated *conflict* higher than teachers). In special schools, mental health problems increased by 2.09 scale points when teachers rated *conflict* higher than students. Figure 3 shows this interaction effect.

In both types of schools, for the *t>s conflict* groups, there was a significant positive association between the degree of *conflict*-disagreement and mental health problems (B = 5.76, β = .46, $p < .001$ for regular schools; B = 2.72, β = .22, $p < .05$ for special schools). These associations did not significantly differ between the two types of school. Figure 4 shows these associations.

The conflict-models each explained 37.6% of the variance in mental health problems (R^2-marginal = 0.376).

Disagreements of TSR-closeness and mental health problems

The closeness-models (Table 5) showed that within regular and special schools, neither the types (groups) of *closeness*-disagreements nor the degree of *closeness*-disagreements were significantly associated

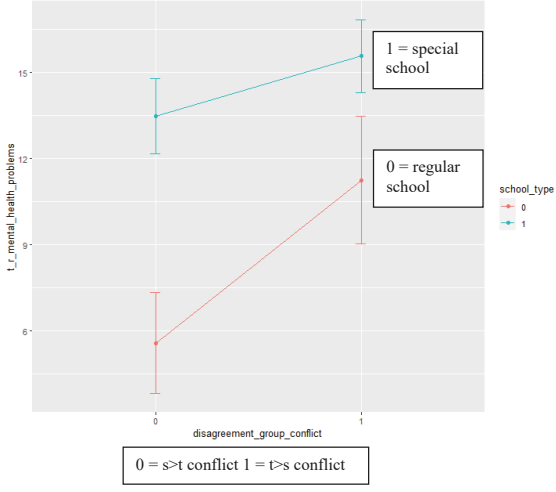


Figure 3
Interaction between disagreement-groups of teacher- and student-rated conflict and school type as predictor of mental health problems.

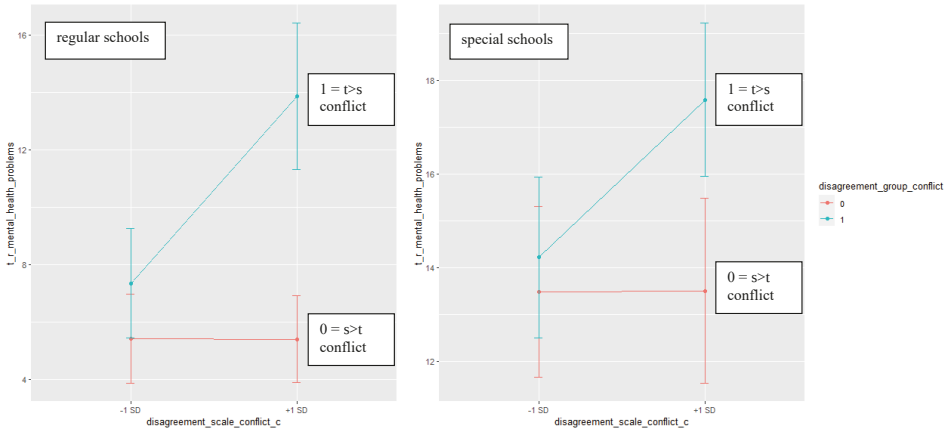
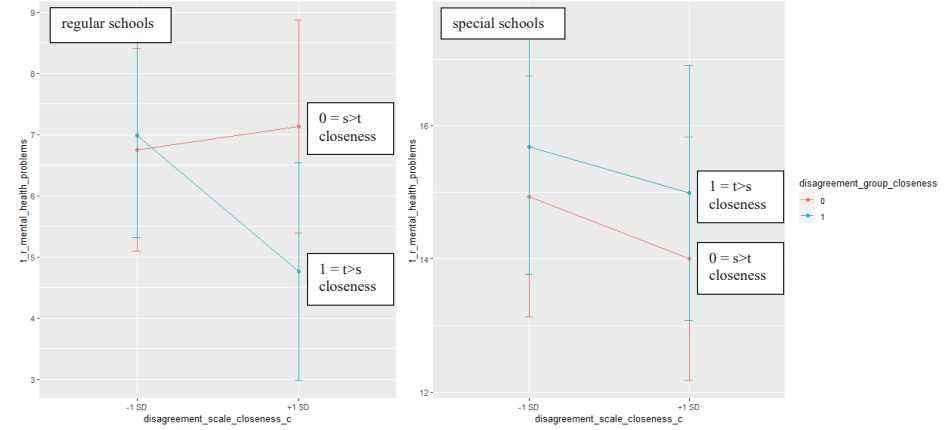


Figure 4
Interaction between disagreement-groups of teacher- and student-rated conflict and the degree of their disagreements as predictor of mental health problems in regular and special schools.



Note. These relations are not significant.

Figure 5
IInteraction between disagreement-groups of teacher- and student-rated closeness and the degree of their disagreements as predictor of mental health problems in regular and special schools.

with mental health problems. However, in regular schools, for the *t>s closeness* group, mental health problems were negatively related to the degree of *closeness*-disagreements (B = -1.46, β = -.13). In special schools (though the beta weights are very low), for both disagreement-groups, mental health problems were negatively related to

the degree of closeness-disagreements (B = -0.78, β = -.07 for the *s>t closeness* group; B = -0.56, β = -.05 for the *t>s closeness* group). Figure 5 shows these relations.

The closeness-models each explained 30.8% of variance in mental health problems (R^2-marginal = 0.308).

Discussion

This study examined the extent to which student- and teacher-rated TSR-dimensions, as well as the disagreement of the two perspectives, were related to mental health problems and whether these associations differed in regular and special schools for students with SEBD.

Conflict and mental health problems

Within both school types, student-perceived and teacher-perceived *conflict* were positive predictors of mental health problems. This supports the expectation that high *conflict* (i.e., quarrels, unpredictability, and unreliability) is a risk factor for developing mental health problems (e.g., de Jong et al., 2018). However, the association between teacher-rated *conflict* and mental health problems was significantly weaker in special schools (β = -.20). A similar but not significant effect arose for student-rated *conflict* (β = -.10). Therefore, *conflict* seems to have a stronger risk-factor effect in regular schools than in special schools. Reasons for this could lie in the specific conditions of special schools: The high focus on social-emotional learning, as well as specific educational approaches (cf. Bolz, 2022) could, for example, lead to more time resources for sharing reflections and understanding conflictual interactions. This, in turn, might lead to *conflict* becoming less important for the development of mental health problems.

This supposition could also explain the results of *conflict*-disagreements. In regular schools, the discrepancy of teachers experiencing more *conflict* than their students (i.e., belonging to the *t>s conflict* group) was more strongly associated with mental health problems than in special schools. Furthermore, it can be observed that higher degrees of disagreements (in that teachers perceive more *conflict* than students) lead to more mental health problems in regular schools (β = .46) than in special schools (β = .22). It could be that for regular school teachers, dealing with students who do not perceive *conflict* as highly as they do might even lead to more conflictual teacher-student interactions and, thus, to an increase in mental health problems (e.g., Pakarinen et al., 2018). In contrast, special school conditions may prevent such dynamics (Zdoupas, 2022).

Within both school types, the results indicate that teacher-rated *conflict* (β = .60 for regular schools; β = .40 for special schools) is more strongly related to mental health problems than student-rated *conflict* (β = .22 for regular schools; β = .12 for special schools). From a statistical perspective, this could be due to 'shared source effects' (Crocket et al., 2018, p. 2193). That is, associations are stronger when predictor and outcome variables are rated from the same perspective (both from teachers' perspectives) than when they are rated from different perspectives (predictor from students' and outcome from teachers' perspectives). With reference to DST, it can be speculated that teacher-perceived TSRs act as self-fulfilling prophecy for their judgement of students' mental health problems. If a teacher has internalised a high-conflict relationship, it is likely that he*she expects corresponding student behaviour within everyday school life (e.g., aggressiveness) and, thus, assesses the behaviour as such (Pianta, 1999).

Closeness and mental health problems

In both types of schools, neither teacher- nor student-perceived *closeness* were significantly related to mental health problems. Accordingly, contrary to some studies (e.g.,

de Jong et al., 2018), the present results do not indicate that *closeness* is a protective factor in developing students' mental health problems. It is possible that conflictual interactions are more easily recognisable than close interactions (warmth, empathy, trust) and that, therefore, *closeness* is less predictive of mutual perceptions and interrelated behaviours between teachers and students (Zee & Koomen, 2017).

Disagreements of *closeness*-perspectives are not significantly associated with mental health problems. However, there was an interesting difference between the school types: In special schools, unlike regular schools, a decrease of mental health problems was observed when there was a greater degree of *closeness*-disagreements, with students experiencing more *closeness* than teachers (β = -.07). It might be that special school teachers do not recognise the sense of students' *closeness* feelings within TSRs but that they do recognise the behaviour associated with high *closeness* (e.g. prosocial behaviour; Roorda et al., 2014), which in turn might imply minor mental health problems (Vösgen et al., 2023). Special school students may have impairments in recognising, naming, and showing functional emotions (Bolz, 2022). Thus, it may be challenging for them to express their feelings of being close to the teacher in a recognisable manner.

Dependency and mental health problems

Within both school samples, *dependency* was significantly and positively associated with mental health problems (β = .17 for regular schools; β = .20 for special schools), with no significant differences between school types. This supports the suggestion that high teacher-perceived *dependency* (i.e., perceiving the student as excessively clingy) is a risk factor for developing mental health problems (e.g., Roorda et al., 2014).

Negative expectations and mental health problems

Students' experiences of *negative expectations* were associated with mental health problems only in special schools (β = .12) with a stronger association than in regular schools (β = .19). It could be that mental health problems in special, but not regular schools, are related to insecure/ambivalent attachment experiences in early childhood (Bolz, 2022). These are possibly transferred to behaviours towards the teacher as a secondary attachment figure, thereby causing the respective students to constantly seek security from the teacher and to be upset at unfulfilled wishes for teacher attention (i.e., developing *negative expectations;* Verschueren, 2015).

Limitations and Future Direction

Some limitations to this study should be considered and could be taken into account in future research.

Regarding the study design, it should be emphasised that the cross-sectional design does not allow for causal interpretations, and the convenience sample is not fully indicative for the inference population (Döring & Bortz, 2016). Longitudinal designs could provide more profound insights into the associations analysed here. Furthermore, the statistical approach for analysing associations between TSR-disagreements and mental health problems involved converting two predictor variables into a single score. This reduces the available information and, thus, might imply methodological disadvantages. In future studies, more advanced methods, such as response surface analysis, could be used (e.g., Rodrigues, 2021).

Concerning the instruments of this study, it must be critically highlighted that mental health problems were rated very broadly (as the total score of the externalising and internalising problem scales) and only from teachers' perspectives. This might cause same-source effects (Crocket et al., 2018)

and bias the assessment of the internalising domain, as teachers are often more accurate at identifying externalising problems than internalising problems (e.g., Splett et al., 2019). In future studies, it could be informative to assess mental health problems from teachers' and students' perspectives and, moreover, by using the 5-factor structure of the SDQ. Additionally, the clearly too low reliability of the dependency scale in the regular school sample limits the results.

With respect to the sample, it should be noted that class nests in special schools were considerably smaller than those in regular schools. Furthermore, substantially fewer regular school classes than special school classes participated.

Poor skewness and kurtosis values must be mentioned concerning data quality. These indicate skewed right and heavy tailed variable distributions, especially in the regular school sample. The high ICC in the null-model shows that much of the variance in mental health problems is explained by the class structure. Thus, class-related predictors (e.g., class climate) might be important for explaining mental health problems and could be considered as mediator variable in future studies.

Practical implications

Some practical implications for relationship-driven interventions can be identified based on the present results. Both a reduction of TSR-*conflict* and an increase of the agreement on *conflict*-perceptions seem to be important for both school types, but especially for regular schools. Reducing TSR-*conflict* could be achieved by increasing positive feedback and behaviour-specific praise (Kincade et al., 2020). A closer alignment of *conflict*-perspectives could be achieved through regular 1:1 meetings with clear steps, including conflict descriptions from both perspectives and joint action planning for future interactions (e.g. Mienert & Vorholz, 2011). Concerning *closeness*, training special school teachers to recognise students' emotions about being close to them may be important. Recognising such emotions could increase teachers' sense of self-efficacy, which is possibly beneficial for future relationship work (Hajovsky et al., 2020) as well as for overall classroom management (Lazarides et al., 2020).

A reduction in *dependency* seems to be important in both school types. This could, for example, be realised through lessons with clearly rhythmised phases of close teacher support and self-regulated learning. This might allow the students to realise they can rely on the teachers' support without constantly demanding security from them (Van Loan & Marlowe, 2013).

Reducing *negative expectations* appears to be particularly relevant for special school students. For this, regular times for positive experiences of being with one another—e.g., within a *Banking Time* intervention (Williford & Pianta, 2020)—could be efficient as it might create a feeling of assured positive teacher attention (Spilt et al., 2022).

In summary, considering student-rated TSRs as well as disagreements between teacher- and student perspectives seems to be beneficial as it, firstly, addresses the complexity of the TSR-construct (Spilt et al., 2022) and secondly, allows for deriving relationship-based interventions in view of teachers' as well as students' perspectives.

References

Achenbach, T. M., Ivanova, M. Y., Rescorla, L. A., Turner, L. V., & Althoff, R. R. (2016). Internalizing/Externalizing problems: Review and recommendations for clinical and research applications. *Journal of the American Academy of Child & Adolescent Psychiatry, 55*(8), 647–656. https://doi.org/10.1016/j.jaac.2016.05.012

Angold, A., Costello, E. J., & Erkanli, A. (1999). Comorbidity. *Journal of Child Psychology and Psychiatry, 40*(1), 57–87. https://doi.org/10.1111/1469-7610.00424

Bates, D., Mächler, M., Bolker, B., & Walker, S. (2015). Fitting linear mixed-effects models using {lme4}. *Journal of Statistical Software, 67*(1), 1–48. https://doi:10.18637/jss.v067.i01

Bolz, T. (2021). Beziehung als Grundlage der Pädagogik bei Verhaltensstörungen?! [Relationship as the basis of pedagogy for behavioral disorders?!]. In H. Ricking, T. Bolz, B. Rieß & M. Wittrock (Eds.), *Prävention und Intervention bei Verhaltensstörungen: Gestufte Hilfen in der schulischen Inklusion* (pp. 128–143). Kohlhammer.

Bolz, T. (2022). *Schüler*innen-Lehrer*innen-Beziehung aus bindungstheoretischer Perspektive im Förderschwerpunkt der emotionalen und sozialen Entwicklung*. Oldenburger Online-Publikations-Server. http://oops.uni-oldenburg.de/5176/

Bolz, T., Vesterling, C., & Koglin, U. (2017). *Deutsche Adaption der Student-Teacher Relationship Scale (STRS)*. Fachgruppe Sonder- und Rehabilitationspädagogische Psychologie. Institut für Sonder- und Rehabilitationspädagogik. Carl von Ossietzky Universität Oldenburg.

Breeman, L. D., van Lier, P. A. C., Wubbels, T., Verhulst, F. C., van der Ende, J., Maras, A., Hopman, J. A. B., & Tick, N. T. (2018). Developmental links between teacher-child closeness and disobedience for boys placed in special education, *Exceptionality, 26*(4), 230–244. https://doi.org/10.1080/09362835.2017.1283624

Brinkworth, M. E., McIntyre, J., Juraschek, A. D., & Gehlbach, H. (2018). Teacher-student relationships: The positives and negatives of assessing both perspectives. *Journal of Applied Developmental Psychology, 55*, 24–38. https://doi.org/10.1016/j.appdev.2017.09.002

Castello, A. (2017). *Schulische Inklusion bei psychischen Auffälligkeiten* [School inclusion in the case of mental health problems]. Kohlhammer.

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling, 9*(2), 233–255. https://doi.org/10.1207/S15328007SEM0902_5

Crocket, L.J., Wasserman, A. M., Rudasill, K. M., Hoffman, L., & Kalutskaya, I. (2018). Temperamental anger and effortful control, teacher-child conflict, and externalizing beahvior across the elementary school years. *Child Development 89*(6), 2176–2195.

Decker, D. M., Dona, D. P., & Christenson, S. L. (2007). Behaviorally at-risk African American students: The importance of student-teacher relationships for student outcomes. *Journal of School Psychology, 45*(1), 83–109. https://doi.org/10.1016/j.jsp.2006.09.004

de Jong, E. M., Koomen, H. M. Y., Jellesma, F. C., & Roorda, D. L. (2018). Teacher and child perceptions of relationship quality and ethnic minority children's behavioral adjustment in upper elementary school: A cross-lagged approach. *Journal of School Psychology, 70*, 27–43.

De Los Reyes, A., Talbott, E., Power, T. J., Michel, J. J., Cook, C. R., Racz, S. J., & Fitzpatrick, O. (2022). The needs-to-goals gap: How informant discrepancies in youth mental health assessments impact service delivery. *Clinical Psychology Review, 92*, 102114. https://doi.org/10.1016/j.cpr.2021.102114

de Vries, J. M., Gebhardt, M., & Voß, S. (2017). An assessment of measurement invariance in the 3- and 5-factor models of the strengths and difficulties questionnaire: New insights from a longitudinal study. *Personality and Individual Differences, 119*, 1–6. https://doi.org/10.1016/j.paid.2017.06.026

Döring, N., & Bortz, J. (2016). *Forschungsmethoden und Evaluation in den Sozial- und Humanwissenschaften* [Research methods and evaluation in the social and human sciences] (Vol. 5). Springer.

Glüer, M. (2013). *Beziehungsqualität und kindliche Kooperations- und Bildungsbereitschaft. Eine Studie in Kindergarten und Grundschule* [Relationship quality and children´s willingness to cooperate and learn. A study in kindergarten and primary school]. Springer VS. https://doi.org/10.1007/978-3-531-19316-8

Goodman, R. (2005). *Fragebogen zu Stärken und Schwächen. SDQ-Deu* [Strengths and Difficulties Questionnaire. SDQ-German]. https://sdqinfo.org/

Gregoriadis, A., Vatou, A., Tsigilis, N., & Grammatikopoulos, V. (2022). Examining the reciprocity in dyadic teacher-child relationships: One-with-many multilevel design. *Frontiers in Education, 6*, 811934. https://doi.org/10.3389/feduc.2021.811934

Hajovsky, D. B., Chesnut, S. R., & Jensen, K. M. (2020). The role of teachers' self-efficacy beliefs in the development of teacher-student relationships. *Journal of School Psychology, 82*, 141–158. https://doi.org/10.1016/j.jsp.2020.09.001

Hennemann, T., Casale, G., Leidig, T., Fleskes, T., Döpfner, M., & Hanisch, C. (2020). Psychische Gesundheit von Schülerinnen und Schülern an Förderschulen mit dem Förderschwerpunkt Emotionale und soziale Entwicklung (PEARL). Ein interdisziplinäres Kooperationsprojekt zur Entwicklung von Handlungsempfehlungen [Mental health of students at special education schools with the focus on emotional and social development (PEARL). An interdisciplinary cooperation project for the development of recommendations for action]. *Zeitschrift für Heilpädagogik*, *71*, 44–57.

IBM (2022). IBM SPSS Statistics for Windows (Version 29.0) [Computer software].

Kincade, L., Cook, C., & Goerdt, A. (2020). Meta-analysis and common practice elements of universal approaches to improving student-teacher relationships. *Review of Educational Research, 90*(5), 710–748. https://doi.org/10.3102/0034654320946836

Klipker, K., Baumgarten, F., Göbel, K., Lampert, T., & Hölling, H. (2018). Psychische Auffälligkeiten bei Kindern und Jugendlichen in Deutschland – Querschnittergebnisse aus KiGGS Welle 2 und Trends [Mental-health problems in children and adolescents in Germany. Results of the cross-sectional KiGGS Wave 2 study and trends]. *Journal of Health Monitoring, 3*(3), 37–45. https://doi.10.17886/RKI-GBE-2018-077

Koomen, H. M. Y., & Jellesma, F. C. (2015). Can closeness, conflict, and dependency be used to characterize students' perceptions of the affective relationship with their teacher? Testing a new child measure in middle childhood. *British Journal of Educational Psychology, 85*(4), 479–497. https://doi.org./10.1111/bjep.12094

Koomen, H. M. Y., Verschueren, K., van Schooten, E., Jak, S., & Pianta, R. C. (2012). Validating the student-teacher relationship scale: Testing factor structure and measurement invariance across child gender and age in a Dutch sample. *Journal of School Psychology, 50*(2), 215–234. https://doi:10.1016/j.jsp.2011.09.001

Leidig, T., Casale, G., Bolz, T., & Laschet, E. (2019). *Deutsche Adaption der Student Perception of Affective Relationship with Teacher Scale (SPARTS)*. Lehrstuhl für Erziehungshilfe und Sozial-Emotionale Entwicklungsförderung. Department Heilpädagogik und Rehabilitation. Universität zu Köln.

KMK (2000). *Empfehlungen zum Förderschwerpunkt emotionale und soziale Entwicklung. Beschluss der Kultusministerkonferenz vom 10.03.2000* [Recommendations for special educational needs in emotional and social development. Decision of the Conference of Ministers of Education and Cultural Affairs in the Federal Republic of Germany of 10.03.2000]. https://www.kmk.org/fileadmin/veroeffentlichungen_beschluesse/2000/2000_03_10-FS-Emotionale-soziale-Entw.pdf

KMK (2022). *Statistische Veröffentlichungen der Kultusministerkonferenz. Dokumentation Nr. 231 – Januar 2022. Sonderpädagogische Förderung in Schulen 2011 bis 2020* [Statistical Publications of the Standing Conference of the Ministers of Education and Cultural Affairs of in the Federal Republic of Germany. Documentation No. 231 – January 2022. Special Educational Support in Schools 2011 to 2020]. https://www.kmk.org/fileadmin/Dateien/pdf/Statistik/Dokumentationen/Dok231_SoPaeFoe_2020.pdf

Lazarides, R., Watt, H. M. G., & Richardson, P. W. (2020). Teachers' classroom management self-efficacy, perceived classroom management and teaching contexts from beginning until mid-career. *Learning and Instruction, 69*, 101346. https://doi.org/10.1016/j.learninstruc.2020.101346

Little, M., & Kobak, R. (2003). Emotional security with teachers and children's stress reactivity: A comparison of special-education and regular-education classrooms. *Journal of Clinical Child and Adolescent Psychology, 32*(1), 127–138. https://doi.org/10.1207/S15374424JCCP3201_12

McConaughy, S. H., & Russell, J. Sk. (1993). Comorbidity of externalizing and internalizing problems. *School Psychology Review, 22*(3), 421–436. https://doi.org/10.1080/02796015.1993.12085664

McGrath, K. F., & Van Bergen, P. (2015). Who, when, why and to what end? Students at risk of negative student–teacher relationships and their outcomes. *Educational Research Review*, *14*, 1–17. https://doi.org/10.1016/j.edurev.2014.12.001

Mejia, T. M., & Hoglund, W. L. G. (2016). Do children's adjustment problems contribute to teacher-child relationship quality? Support for a child-driven model. *Early Childhood Research Quarterly, 34*, 13–26. https://doi.org/10.1016/j.ecresq.2015.08.003

Mienert, M. & Vorholz, H. (2011). Schüler und Lehrer im Konflikt. Neue Strategien für ein respektvolles Miteinander [Students and teachers in conflict. New strategies for respectful togetherness]. In P. Buchwald (Ed.), *Hilfe für Eltern, Lehrer, Pädagogen*. Ferdinand Schöningh.

Murray, C., & Zvoch, K. (2011). Teacher–student relationships among behaviorally at-risk African American youth from low-income backgrounds: Student perceptions, teacher perceptions, and socioemotional adjustment correlates. *Journal of Emotional and Behavioral Disorders, 19*(1), 41–54. https://doi.org/10.1177/1063426609353607

Nakagawa, S., & Schielzeth, H. (2013). A general and simple method for obtaining R^2 from generalized linear mixed-effects models. *Methods in Ecology and Evolution, 4*, 133–142. https://doi.org/10.1111/j.2041-210x.2012.00261.x

Nurmi, J.-E. (2012). Students' characteristics and teacher–child relationships in instruction: A meta-analysis. *Educational Research Review, 7*(3), 177–197. https://doi.org/10.1016/j.edurev.2012.03.001

Pakarinen, E., Silinskas, G., Hamre, B. K., Metsäpelto, R.-L., Lerkkanen, M.-K., Poikkeus, A.-M., & Nurmi, J.-E. (2018). Cross-lagged associations between problem behaviors and teacher-student relationships in early adolescence. *The Journal of Early Adolescence, 38*(8), 1100–1141. https://doi.org/10.1177/0272431617714328

Pianta, R. C. (1999). *Enhancing relationships between children and teachers*. American Psychological Association. https://doi.org/10.1037/10314-000

Pianta, R. C. (2001). *STRS Student-teacher relationship scale: Professional manual*. Psychological Assessment Resources.

Pianta, R. C., Hamre, B. & Stuhlman, M. (2003). Relationships between teachers and children. In W. M. Reynolds & G. E. Miller (Eds.), *Handbook of Psychology: Educational Psychology* (Vol. 7, pp. 199–234). John Wiley & Sons.

Revelle, W. (2020). *psych: Procedures for Psychological, Psychometric, and Personality Research*. https://CRAN.R-project.org/package=psych

Roorda, D. L., Verschueren, K., Vancraeyveldt, C., Van Craeyevelt, S., & Colpin, H. (2014). Teacher–child relationships and behavioral adjustment: Transactional links for preschool boys at risk. *Journal of School Psychology, 52*(5), 495–510. https://doi:10.1016/j.jsp.2014.06.004

Roorda, D. L., Zee, M., & Koomen, H. M. Y. (2021). Don't forget student-teacher dependency! A meta-analysis on associations with students' school adjustment and the moderation role of student and teacher characteristics. *Attachment & Human Development*, *23*(5), 490–503. https://doi.org/10.1080/14616734.2020.1751987

Rudasill, K. M., Pössel, P., Winkeljohn Black, S. Niehaus, K. (2014). Teacher support mediates concurrent and longitudinal associations between temperament and mild depressive symptoms in sixth grade. *Early Child Development and Care, 184*(6), 803–818.

Rodrigues, A. C. (2021). Response surface analysis: A tutorial for examining linear and curvilinear effects. *Journal of Contemporary Administration, 6*, 1–14. https://doi.org/10.1590/1982-7849rac2021200293.en

Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal for Statistical Software, 48*(2), 1–36. https://doi.org/10.18637/jss.v048.i02

Schweer, M. K. W., This, B., & Lachner, R. P. (2017). Soziale Wahrnehmungsprozesse und unterrichtliches Handeln. Eine dynamisch-transaktionale Perspektive [Social perception processes and teaching behaviour. A dynamic-transactional perspective]. In M. K. W. Schweer (Ed.), *Lehrer-Schüler-Interaktion. Inhaltsfelder, Forschungsperspektiven und methodische Zugänge* (pp. 121–146). Springer.

Spilt, J. L., Verschueren, K., Van Minderhout, M. B. W. M., & Koomen, H. M. Y. (2022). Practitioner review: Dyadic teacher–child relationships: Comparing theories, empirical evidence and implications for practice. *The Journal of Child Psychology and Psychiatry, 63*(7), 724–733. https://doi.org/10.1111/jcpp.13573

Splett, J. W., Garzona, M., Gibson, N., Wojtalewicz, D., Raborn, A., & Reinke, W. M. (2019). Teacher recognition, concern, and referral of children's internalizing and externalizing behavior problems. *School Mental Health 11*, 228–239. https://doi.org/10.1007/s12310-018-09303-z

Van Bergen, P., Graham, L. J., & Sweller, N. (2020). Memories of positive and negative student–teacher relationships in students with and without disruptive behavior. *School Psychology Review*, *49*(2), 178–194. https://doi.org/10.1080/2372966X.2020.1721319

Van Loan, C. L., & Marlowe, M. J. (2013). Understanding and fostering teacher-student relationships to prevent behavior problems. In S. W. Smith & M. L. Yell (Eds.), *A teacher´s guide to preventing behavior problems in the elementary classroom* (pp. 57–80). Pearson.

Verschueren, K. (2015). Middle childhood teacher-child relationships: Insights from an attachment perspective and remaining challenges. In G. Bosmans & K. A. Kerns (Eds.), *Attachment in middle childhood: Theoretical advances and new directions in an emerging field* (pp. 77–91). Jossey-Bass.

Vervoort, E., Doumen, S., & Verschueren, K. (2015). Children's appraisal of their relationship with the teacher: Preliminary evidence for construct validity. *European Journal of Developmental Psychology, 12*(2), 243–260. https://doi.org/10.1080/17405629.2014.989984

Vösgen, M., Bolz, T., Casale, G., Hennemann, T., & Leidig, T. (2023). Diskrepanzen in der Lehrkraft- und Schüler:innenwahrnehmung der dyadischen Beziehung und damit verbundene Unterschiede der psychosozialen Probleme an Förderschulen für Emotionale und soziale Entwicklung – eine Mehrebenenanalyse [Discrepancies in teacher and student perceptions of the dyadic relationship and associated differences in psychosocial problems at special education schools for emotional and social development – a multi-level analysis]. *Emotionale und soziale Entwicklung in der Pädagogik der Erziehungshilfe und bei Verhaltensstörungen: ESE*.

Williford, A. P., & Pianta, R. C. (2020). Banking Time: A dyadic intervention to improve teacher-student relationships. In A. L. Reschly, A. J. Pohl & S. L. Christenson (Eds.), *Student Engagement. Effective Academic, Behavioral, Cognitive, and Affective Interventions at School* (pp. 239–250). Springer. https://doi.org/10.1007/978-3-030-37285-9

Wolf, L. M., & Dietze, T. (2022). Ein Überblick über die Organisation der Feststellung von sonderpädagogischen Förderbedarfen in Deutschland [An overview of the organization of the assessment of special educational needs in Germany]. In M. Gebhardt, D. Scheer & M. Schurig (Eds.), *Handbuch der sonderpädagogischen Diagnostik. Grundlagen und Konzepte der Statusdiagnostik, Prozessdiagnostik und Förderplanung* (Vol. 1.0, pp. 325–344).

Zdoupas, P. (2022). *Selbstkonzept und Klassenlehrkraftverhalten. Befunde vergleichender Analysen zu Schülerinnen und Schülern mit Förderbedarf in der emotionalen und sozialen Entwicklung* [Self-concept and classroom teacher behavior. Findings of comparative analyses of students with special needs in emotional and social development]. Springer VS. https://doi.org/10.1007/978-3-658-38576-7

Zdoupas, P., & Laubenstein, D. (2023). 'I feel well, accepted and competent in school' – Determinants of self-perceived inclusion and academic self-concept in students with diagnosed behavioral, emotional and social difficulties (BESD). *Social Sciences, 12*(3), 154. https://doi.org/10.3390/socsci12030154

Zee, M., & Koomen, H. M. Y. (2017). Similaritis and dissimilarities between teachers' and students' relationship views in upper elementary school: The role of personal teacher and student attributes. *Journal of School Psychology, 64*, 43–60. https://doi.org/10.1016/j.jsp.2017.04.007

Zee, M., de Bree, E., Hakvoort, B., & Koomen, H. M. Y. (2020). Exploring relationships between teachers and students with diagnosed disabilities: A multi-informant approach. *Journal of Applied Developmental Psychology, 66,* 101101. https://doi.org/10.1016/j.appdev.2019.101101

Autorinnen- und Autorenhinweis

Meike Vösgen-Nordloh
https://orcid.org/0000-0001-6135-6009

Tatjana Leidig
https://orcid.org/0000-0002-4598-917X

Helma Koomen
https://orcid.org/0000-0001-9404-1855

Gino Casale
https://orcid.org/0000-0003-2780-241X

Thomas Hennemann
https://orcid.org/0000-0003-4961-8680

Tijs Bolz
https://orcid.org/0000-0001-9611-1239

Korrespondenzadresse:
Meike Vösgen-Nordloh
Universität zu Köln
Klosterstraße 79b, 50931 Köln
meike.voesgen@uni-koeln.de

Erstmals eingereicht: 29.04.2023
Überarbeitung eingereicht: 17.10.2023
Angenommen: 24.10.2023

Offene Daten	Daten können unter meike.voesgen@uni-koeln.de angefragt werden.
Offener Code	Computercode kann unter meike.voesgen@uni-koeln.de angefragt werden.
Offene Materialien	SPARTS und STRS können unter meike.voesgen@uni-koeln.de angefragt werden. SDQ-Deu kann unter sdqinfo.org heruntergeladen werden.
Präregistrierung	Nein
Votum Ethikkommission	Die Ethikkommission der Carl von Ossietzky Universität Oldenburg hat am 26.09.2018 das Design der vorliegenden Studie geprüft.
Finanzielle und weitere sachliche Unterstützung	Das Projekt wird mit hauseigenen Mitteln finanziert.
Autorenschaft	Konzeptualisierung: MV, TL, GC, TB, TH; Projektleitung: TL, TB; Datenerhebung: TL, MV, TB, GC; Datenmanagement: MV, TL; Datenanalyse: GC (Messinvarianzanalysen), alle weiteren Analysen federführend durch MV, unter Mitarbeit von GC; Verfassung und Überarbeitung des Manuskripts: Federführung durch MV, unter Mitarbeit von TL, GC, TB, HK, TH; Visualisierung / Datenpräsentation: MV