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Special education teachers' relationships with students and self-efficacy moderate associations between classroom-level disruptive behaviors and emotional exhaustion

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HIGHLIGHTS

- Data were collected from 141 teachers in 14 schools for special secondary education.
- We tested under which conditions teachers felt emotionally drained.
- Student closeness moderated classroom disruptions' impact on emotional exhaustion.
- Teacher self-efficacy also moderated the impact of classroom disruptions.

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ABSTRACT

This study examined the moderating role of teachers' relationship with students and their self-efficacy in the association between classroom-level disruptive behaviors and emotional exhaustion. Two measurement occasions were completed by 98 teachers from fourteen Dutch special education schools for adolescent students with psychiatric disabilities. Results show that by the end of the school year, teachers with high levels of closeness and self-efficacy reported increases in emotional exhaustion as a function of classroom-level disruptive behaviors, which is in line with research conducted in general education studies. Unexpectedly, emotional exhaustion decreased in low-involved teachers experiencing more classroom disruption.

1. Introduction

Dealing with disruptive behaviors in the classroom is one of the most salient sources of stress experienced by teachers (Evers, Tomic, & Brouwers, 2004; Klassen & Anderson, 2009). Indeed, attrition rates are alarmingly high in teachers working with students who show high levels of challenging behaviors (e.g., Billingsley, 2004; McLeskey, Tyler, & Flippin, 2004). Also, they are at high risk of developing dysfunctional cognitions about dealing with stress (Kiel, Heimlich, Markowetz, Braun, & Weiss, 2016). This makes teachers working with students who show chronically challenging behaviors due to psychiatric disabilities vulnerable for developing symptoms of stress (e.g., Brunsting, Sreckovic, & Lane, 2014).

One of the reasons for this susceptibility may be that these teachers are not only exposed to population specific stressors, such as the daily exposure to high levels of disruptive behaviors that are displayed by these students, but also encounter stressors that are generally known to put strain on all teachers, including high demands and lack of resources (e.g., Hakanen, Bakker, & Schaufeli,

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2006). The extent to which teachers experience stress as a result of working with students with special educational needs varies between teachers (Greene, Beszterczey, Katzenstein, Park, & Goring, 2002). This variation may be impacted by the interaction between being exposed to high levels of disruptive behaviors and certain teachers' characteristics, that may cause teachers to experience sources of strain quite differently from one teacher to another (Beltman, Mansfield, & Price, 2011). These characteristics may stem from their work environment (Fernet, Guay, Senécal, & Austin, 2012), such as the classroom context that is shaped to a substantial extent by the interpersonal relationships teachers build with their students, or more robust characteristics (Kokkinos, 2007), including teachers' sense of their own effectiveness in teaching. To explore the conditions created by teachers' relationships with students and sense of self-efficacy that may cause variation in the experience of symptoms of stress, this study examined these variables among 141 Dutch teachers of adolescent students who are placed in separated settings of special secondary education due to psychiatric disabilities over the course of one school year.

2. Literature overview

2.1. Teacher emotional exhaustion in mainstream education

Teachers confronted with many classroom-level disruptive behaviors on a daily basis are likely to experience stress symptoms (e.g., Evers et al., 2004; Frank & McKenzie, 1993). These symptoms are best described in terms of emotional exhaustion, lack of personal accomplishment, and depersonalization (Maslach & Jackson, 1981). Given that previous studies showed that of these three components, emotional exhaustion is most strongly related to being exposed to disruptive behaviors (Aloe, Shisler, Norris, Nickerson, & Rinker, 2014), we focus on symptoms of emotional exhaustion. However, not all teachers are equally impacted by disruptive behaviors. Teachers' relationships with students (e.g., van Droogenbroeck, Spruyt, & Vanroelen, 2014) and their sense of self-efficacy (e.g., Evers, Brouwers, & Tomic, 2002) have been identified as possible factors that may buffer teachers against the onset of feeling emotionally exhausted, or serve as exacerbators of the impact of disruptive behaviors on their levels of emotional exhaustion.

Several theories are proposed to explain why individuals differ in their response to stressors. Important work in this area has been conducted by Lazarus and colleagues. According to the transactional model of stress and coping (e.g., Lazarus & Folkman, 1984), stressors are first evaluated by us, leading to emotions, which are regulated depending on our interpersonal context and resources that are available to us. It is claimed that positive, meaningful interpersonal relationships may enable us to regulate potential adverse emotions that are elicited by potential stressors (e.g., Lazarus, 2006). Following these theories, supportive interactions with students may also help teachers in dealing emotionally with classroom-level disruptive behaviors, and protect them from feeling emotionally exhausted. Indeed, teachers who are able to regulate their emotions experience less strain (Tsouloupas, Carson, Matthews, Grawitch, & Barber, 2010). While not specifically conducted in the context of identifying buffers against developing emotional exhaustion, empirical studies partially underscore this supposed protection by showing that teachers who interact positively with their students are more satisfied with their jobs (Shann, 1998), and experience less stress (van Droogenbroeck et al., 2014). In contrast, negative interactions with students can put great emotional demands on teachers' ability to teach and guide their students (Grayson & Alvarez, 2008). This may be especially the case when students display severe disruptive behaviors (Greene et al., 2002) or when teachers are in relational conflict with their students (Spilt, Koomen, & Thijs, 2011).

In addition to teachers' relationships with students, teaching self-efficacy has been described as critical in understanding the onset of teachers' emotional exhaustion under the influence of students' disruptive behaviors. Originally, self-efficacy was introduced by Bandura (1977) to explain behavioral change; it refers to a cognitive process in which your expectations about the extent to which you master a specific task influence your behavior. High expectations about your effectiveness will lead to the belief that you can cope with this task and result in high persistence when fulfilling the task, while low expectations will lead to avoidance of the task.

In recent years, *teaching self-efficacy* has been explored to identify important educational outcomes, such as teachers' levels of persistence and resilience. Teaching self-efficacy refers to teachers' perception that they are able to impact on student outcomes (e.g., Tschannen-Moran & Woolfolk Hoy, 2001). Teachers with high teaching self-efficacy feel they can be effective even with challenging students, while teachers with low teaching self-efficacy feel less able to influence students' behavior and may experience more discipline problems. Results of previous studies showed that teaching self-efficacy is related to teachers' job satisfaction (e.g., Klassen & Chiu, 2010). Maintaining a high sense of teaching self-efficacy may thus prevent teachers from developing symptoms of emotional exhaustion when being challenged by difficult classroom disruptions (Egyed & Short, 2006).

2.2. Teacher emotional exhaustion in special education

The above synopsis may lead to the expectation that special education teachers can benefit from strong beliefs in their ability to teach their students and experience close relationships with their students, such that it prevents them from feeling emotionally exhausted. However, until now, most studies examining the impact of such factors on stress symptoms in teachers were conducted in general education (e.g., Dicke et al., 2014; Friedman-Krauss, Raver, Morris, & Jones, 2014). Little is known about these processes in school settings specializing in educating students with psychiatric disabilities. This type of special education differs from general and inclusive education in that those teachers educate students who all have severe psychiatric disabilities (Meijer, 2003). In fact, with higher symptom severity chances are higher that students are placed in specialized schools relative to receiving special education services in general and inclusive education (Stoutjesdijk, Scholte, & Swaab, 2012).

In the Netherlands, teachers working at these specialized schools teach students who 1) meet criteria of one or more DSM IV diagnoses (American Psychiatric Association, 2000), or received mental health care for at least six months without their maladjusted behaviors showing any progress, 2) display social, emotional and/or behavioral problems both at school, and at home and/or during recreational activities, 3) were involved in the care of mental health care organizations, 4) were obstructed in attending general education because of their psychiatric disabilities, and 5) attended a mainstream school that provided adequate care of the students' needs, but ceased care because of lack of impact (Meijer, 2003). Core problems in these students may vary from intellectual disabilities to social impairments, from internalizing disorders to externalizing disorders, and combinations of these problems. However, externalizing problems are the most prevalent (Drost & Bijstra, 2008).

It may therefore not be surprising that teachers of students with such problems report more stress symptoms than their colleagues

working with students who cope with other disabilities, such as intellectual disabilities or physical impairments (Brunsting et al., 2014). They also report more disruptive behaviors in their students than teachers in inclusive education (Cavendish, Nielsen, & Montague, 2012), suggesting that this classroom environment is more challenging. Given this, it seems essential to understand whether the same factors that protect teachers in general and inclusive education from feeling exhausted apply to teachers of students with special educational needs due to psychiatric disabilities in a specialized setting in special education.

It may however well be that factors that buffer the relationship between disruptive behaviors and emotional exhaustion operate differently among special education teachers. Following the job demands-resources model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001), which is a general model based on data gathered in human services including teaching, but also in industry and transport, burnout symptoms arise under specific working conditions, namely when job demands are high and resources are limited. It can be argued that in the context of the high demands that are put on teachers in special education (Brunsting et al., 2014), being highly involved with students may in fact put teachers at risk to feel they often fail in achieving their educational goals. This may particularly relevant for teachers who attempt to maintain close relationships and high effectiveness in classrooms that are characterized by high levels of disruptive behaviors. They may regard their personal resources as being insufficient or depleted. These teachers may be at greater risk of feeling emotionally exhausted. A high level of involvement may thus not protect, but actually have a negative impact on these teachers' wellbeing. Therefore, associations between disruptive behaviors and emotional exhaustion found in studies conducted in general education could actually be in the opposite direction in special education. Uncovering such dynamics may provide important starting points for teacher interventions that intend to reduce their levels of emotional exhaustion. It is therefore important to explore the moderating role of teachers' relationships with students and their sense of teaching self-efficacy on the impact of classroom-level disruptive behaviors on symptoms of emotional exhaustion in the highly demanding context of special education.

3. The present study

This study investigated the conditions under which teachers' levels of emotional exhaustion symptoms developed over the course of one school year as a function of disruptive behaviors in specialized settings of special secondary education. Both teachers' relationships with students and teaching self-efficacy were used in moderation analyses to examine these conditions. As little is known about how these variables relate to each other in self-contained classrooms for students with psychiatric disabilities, the approach of this study is exploratory.

4. Method

4.1. Participants

In school year 2010/2011, 144 teachers were eligible for participation in the study. Written informed consent was obtained for 141 teachers (98%). Participating teachers (see Table 1; years of age range = 22.3–62.8) had on average 5.1 years experience in teaching students with psychiatric disabilities (range = 0.0–39.0). At pretest, 69% of their students gave informed consent for filling out questionnaires about their disruptive behaviors. Teachers rated on average 7 students' disruptive behaviors ($M = 6.9$, $SD = 2.2$). Out of the 141 teachers who were in our analyses, posttest data on emotional exhaustion were missing for 43 teachers, because of refusing to participate at the follow-up assessment ($n = 25$), ceasing their homeroom-teacher activities ($n = 14$), leaving school ($n = 3$) or being on sick leave while the assessment took place ($n = 1$). Missing data at posttest was not related to teachers' gender, $\chi^2(1, N = 141) = .44$, $p = .51$, age, $F(1, 139) = .003$, $p = .96$, or pretest scores of symptoms of emotional exhaustion $F(1, 110) = 1.98$, $p = .16$.

Table 1
Age, teaching experience, and student informed consent for teachers in special secondary education in the Netherlands.

	Female ($n = 86$)		Male ($n = 55$)		Total ($n = 141$)	
	M	*SD*	*M*	*SD*	*M*	*SD*
Age	36.1	10.8	42.6	9.7	38.7	10.9
Years of teaching experience with students with psychiatric disabilities	5.0	5.2	5.1	4.4	5.1	5.0
Number of participating students	7.1	2.3	6.7	2.0	6.9	2.2

4.2. Design

Data used in the present study were collected as part of a study on the effectiveness of a professional development project for teachers. During the school year 2010/2011, fourteen special secondary schools located throughout the Netherlands participated in the study. Teachers and their students of eleven of these schools were included in previous measurement occasions that were no part of the present study. Data used for this study came from two waves of data collection during the school year 2010/2011; in October/November (T0; at least 4 weeks into the school year) and in June (T1; approximately 6 months after T0). The study was approved by the Dutch Medical Ethics Committee for Mental Health Care (METiGG).

4.3. Measures

Data on the study variables were collected from teachers' self-reports and among the students in these teachers' tutorial classes. Tutor-students can be regarded as the students best known to the teachers, and vice versa, as teachers pay special attention to these students, next to teaching them one or more school subjects (cf. homeroom-teachers). It is important to note that teachers included in this study work with students who are placed in secondary special education due to psychiatric disabilities and associated behavioral, social and emotional problems. In this particular type of high schools, teachers do not only teach one or more subjects, they also guide a group of students in their social-emotional development, and may therefore develop a more close relationship than is common in mainstream secondary education. Students' interactions with these teachers differ from other teachers in that they have more frequent contact, and they may share more information about topics that are not directly related to school. Other conditions, such as rules and structure are equal to interactions between students and other teachers in secondary education. Data were collected by research assistants. They were present to answer participants' questions and to check questionnaires on missing data. To reward for participating in the study, school teams received a gift certificate that could be swapped for one group activity (e.g., organized barbeque, making a boat trip).

4.3.1. Emotional exhaustion

Teachers rated emotional exhaustion symptoms using one scale of the Maslach Burnout Inventory – Teacher Form (MBI; Dutch

version by Schaufeli & van Dierendonck, 2000). Symptoms were rated on a seven-point Likert scale ranging from 0 (*never*) to 6 (*every day*). The scale has eight items (e.g., "I feel emotionally drained from my work"). At the two measurement occasions, Cronbach's alphas were .87 and .90. The factor structure of the MBI has been confirmed (e.g., Lee & Ashforth, 1990). Convergent validity (Jackson & Maslach, 1982) and test-retest reliability (Rosse, Boss, Johnson, & Crown, 1991) are adequate.

4.3.2. Classroom disruptions

Teacher-ratings of classroom-level disruptive behaviors were assessed using two subscales of the Problem Behavior in School Interview (PBSI; Erasmus, 2000). Teachers rated each student's externalizing problems on a five-point Likert scale ranging from 0 (*never*) to 4 (*very often*). The oppositional defiant scale contains seven items (e.g., "Does not comply with school rules"), and the conduct disorder scale contains twelve items (e.g., "Gets into many fights"). Cronbach's alpha was .92 for the oppositional defiant disorder scale, and .91 for the conduct disorder scale. The externalizing scale of the PBSI correlates significantly with the externalizing scales of the Teacher's Report Form (Achenbach, 1991; Verhulst, van der Ende, & Koot, 1997; $r = .75$; Witvliet, van Lier, Cuijpers, & Koot, 2010). Scores on the two scales ($r = .81$, $p < .01$) were added and divided by two, resulting in a problem behavior score for each individual student. As our unit of analysis was on the classroom-level, the scores were aggregated to compute an overall classroom disruptions score.

4.3.3. Teacher-student relationships

Student perceived teacher interactions were assessed using two subscales of the Questionnaire on Teacher Interaction (QTI; e.g., Wubbels, Brekelmans, den Brok, & van Tartwijk, 2006). Students rated their teacher on a five-point Likert scale ranging from 0 (*never*) to 4 (*always*). The helping scale and admonishing scale contained seven items each. Cronbach's alpha was .86 for the helping scale (e.g. "This teacher is friendly towards students"), and .66 for the admonishing scale ("This teacher threatens with punishment"). Data were aggregated to compute one helping interaction score and one admonishing interaction score for each teacher. On average, teachers' interaction scores were assessed by 7 students ($M = 6.7$, $SD = 2.6$). The QTI is considered a reliable measure of assessing teacher-student interaction (Wubbels & Levy, 1991). Its factor structure has been confirmed (Maulana, Opdenakker, den Brok, & Bosker, 2012).

Teacher-reports of their relationship with students contained two subscales of the Student Teacher Relationship Scale (STRS; Koomen, Verschueren, & Pianta, 2007; Pianta, 2001). Teachers rated the quality of their relationship with each individual student on a five-point Likert scale, ranging from 0 (*definitely does not apply*) to 4 (*definitely applies*). The two subscales used in this study each refer to a different aspect of their relationship with their students (i.e. closeness and conflict). The closeness scale contains fourteen items (e.g., "I share an affectionate, warm relationship with this child"), and the conflict scale thirteen items (e.g., "This child and I always seem to be struggling with each other"). Cronbach's alpha was .90 for the closeness scale, and .91 for the conflict scale. Data were aggregated to compute one overall close relationship score and one overall conflictual relationship score. The convergent and discriminant validity of the closeness scale and the conflict scale are supported (Doumen et al., 2009). In addition, the factor structure of the Dutch version of the STRS has been confirmed (Koomen, Verschueren, van Schooten, Jak, & Pianta, 2012).

4.3.4. Teaching self-efficacy

Teachers' teaching self-efficacy was measured using the Teachers' Sense of Efficacy Scale (TSES; Tschannen-Moran & Woolfolk Hoy, 2001), which consists of three subscales. The validity and reliability of the TSES are well-examined (Tschannen-Moran & Woolfolk Hoy, 2001), and the translated version has been used with Dutch samples (e.g., Hopman et al., 2018). Teachers were asked to rate their levels of teaching self-efficacy on a nine-point Likert scale, ranging from 0 (*nothing*) to 8 (*a great deal*). Each subscale referred to a different domain in which teachers could feel efficacious (i.e., student engagement, classroom management, instructional strategies). These scales contain four items, but after reliability analyses were conducted, one item of the student engagement scale was removed from further analyses (i.e., "How much can you assist families in helping their child do well in school?"). Cronbach's alpha was .78 for the student engagement scale (e.g., "How much can you do to motivate students who show low interest in schoolwork?"), .84 for the classroom management scale (e.g., "How much can you do to get children to follow classroom rules?"), and .73 for the instructional strategies scale (e.g., "To what extent can you provide an alternative explanation or example when students are confused?").

4.3.5. Covariates

To control for possible differences between schools assessed in different school years, teacher's group status (0 = entering the study in school year 2010/2011, 1 = entering the study in school year 2009/2010) was dummy coded. Half of the sample received a preventive intervention program intending to reduce students' levels of disruptive behaviors (Hopman et al., 2017). As the intervention also impacted on teacher outcomes, such as levels of burnout symptoms and levels of self-efficacy (Hopman et al., 2018), analyses used in the present study were controlled for these effects. Intervention status (0 = education as usual, 1 = experimental condition) was therefore also dummy coded. Also, to address the potential impact of the emotional demands and stress that may be built up as special education teachers progress in their careers, years of teaching experience was used as a controlling variable.

4.4. Data analysis

Main effects were calculated by regressing the dependent variable, teacher symptoms of emotional exhaustion at T1 (end of school year), on initial levels of emotional exhaustion at T0 (step 1). After entering the main effects of T0 levels of classroom-level disruptive behaviors and teachers' relationships and self-efficacy (step 2), we added the interaction terms between classroom-level disruptive behaviors and our hypothesized moderating variables to study for interaction effects in the link between classroom-level disruptive behaviors and symptoms of emotional exhaustion (step 3). All estimates were controlled for teachers' years of teaching experience in special education, assessment year and intervention status. To facilitate interpretation of possible significant moderation effects, all predictor variables and covariates were centered by subtracting the sample mean from each individual teachers' values of the specific variable. This resulted in new sample means of zero.

Following an approach proposed by Holmbeck (2002), post-hoc probing was performed on significant interaction effects, involving two continuous variables (predictor x moderator). This procedure determines how each level of the moderator (low versus high) affects the relationship between classroom-level disruptive behaviors and emotional exhaustion. To achieve this, slopes were generated for values ± 1 *SD* from the mean of each moderator. For the low condition, the moderator values are 1 *SD* under the mean; for the high condition, the moderator values are 1 *SD* above the

mean. Models were fitted in Mplus version 6.12 (Muthén & Muthén, 1998–2007). We took account of nesting of the data within schools, such that standard errors were adjusted for school level variation of the study variables. An MLR estimator (maximum likelihood with robust standard errors) was used to control for possible non-normality of the data. Full information maximum likelihood (FIML) was used to account for missing data, which uses all data that are available to estimate the parameters of the models. Post-hoc analyses were performed as follow-up tests to examine whether teachers with low/high scores on the moderator variables differed significantly from each other with regard to their levels of depersonalization and lack of personal accomplishment.

5. Results

5.1. Descriptive statistics

Table 2 displays raw means, standard deviations and range of the study variables at baseline, except for emotional exhaustion, which values are displayed across the two measurement occasions. It also shows cross-sectional correlations between our study variables, as well as significant stability correlations within emotional exhaustion. Classroom-level disruptive behaviors and emotional exhaustion were significantly correlated across time.

5.2. Associations between teacher-student relationship, classroom disruptive behavior and teacher emotional exhaustion

Note that estimates of means suggest an overall decrease in emotional exhaustion among teacher from T0 to T1 (see Table 3). Results show that no significant interactions were found between helping student-teacher interaction and conflictual relationship with classroom-level disruptive behaviors in predicting the rate of change in emotional exhaustion from T0 to T1. However, there was a significant interaction between classroom-level disruptive behaviors and student-reported admonishing interaction, and between classroom-level disruptive behaviors and teacher-reported close relationship in predicting change in teacher emotional exhaustion from T0 to T1.

Post-hoc probing of the moderation effects are plotted in Fig. 1. Results for admonishing interaction (top part of Fig. 1) show no significant differences between teachers with low scores on admonishing interaction versus teachers with high scores. Post-hoc probing of the moderation effect of teacher-student closeness shows that when teachers perceived their relationship with their students as close in the beginning of the school year, levels of emotional exhaustion decreased from T0 to T1 in low disruptive classrooms, but increased in classrooms with more disruptive behaviors (increase in emotional exhaustion as a function of classroom-level disruptive behaviors; $b = .46$, $SE\ b = .16$, $\beta = .52$, $p = .005$). In contrast, when teachers did not perceive this relationship as close, levels of emotional exhaustion increased from T0 to T1 in low level disruptive classrooms, but decreased in classrooms with more disruptive behaviors (decrease in emotional exhaustion as a function of classroom-level disruptive behaviors, $b = -.68$, $SE\ b = .25$, $\beta = -.78$, $p = .006$; Fig. 1, bottom part).

Table 3
Multiple regressions for emotional exhaustion symptoms in special secondary education.

		b	*SE b*	β	*p*
Step 1	Emotional exhaustion	.56	.06	.68	<.001
	Years of teaching experience	-.03	.01	-.16	.02
	Intervention status	-.10	.06	-.09	.09
	Assessment year	.02	.13	.01	.88
Step 2	Emotional exhaustion	.58	.06	.70	<.001
	Years of teaching experience	-.04	.01	-.22	<.01
	Intervention status	-.08	.07	-.07	.22
	Assessment year	.01	.14	.00	.96
	CDB	.31	.29	.35	.29
	Helping interaction	-.02	.18	-.01	.89
	Admonishing interaction	.21	.21	.09	.32
	Closeness	-.01	.14	-.01	.92
	Conflict	-.46	.34	-.46	.18
	Student engagement	.20	.17	.19	.24
	Classroom management	-.17	.15	-.17	.26
	Instructional strategies	-.05	.08	-.05	.55
Step 3	Emotional exhaustion	.60	.07	.70	<.001
	Years of teaching experience	-.06	.01	-.31	<.001
	Intervention status	-.18	.08	-.15	.04
	Assessment year	.12	.16	.07	.45
	CDB	.34	.22	.37	.12
	Helping interaction	-.13	.20	-.07	.53
	Admonishing interaction	.07	.20	.03	.74
	Closeness	.21	.16	.10	.20
	Conflict	-.54	.32	-.47	.09
	Student engagement	.21	.14	.19	.14
	Classroom management	-.14	.13	-.14	.29
	Instructional strategies	-.03	.08	-.03	.75
	CDB × helping interaction	.36	.36	.08	.32
	CDB × admonishing interaction	.87	.35	.18	.01
	CDB x closeness	.65	.19	.16	<.01
	CDB x conflict	-.02	.29	-.01	.94
	CDB x student engagement	−1.08	.29	-.50	<.001
	CDB x classroom management	.89	.24	.44	<.001
	CDB x instructional strategies	.39	.26	.17	.13

Note. CDB = Classroom disruptive behaviors.

5.3. Associations between teacher-child relationship, classroom disruptive behavior and teacher self-efficacy

Results from the possible moderation effects of teachers' self-

Table 2
Means, standard deviations, range, and pearson correlations of classroom disruptions, teachers' relationships with students and self-efficacy, and emotional exhaustion symptoms in special secondary education.

Measures	($n = 141$)										
	M[SD]	range	1	2	3	4	5	6	7	8	9
1. Classroom-level disruptive behaviors T0	1.27[.46]	.12–2.57									
2. Helping interaction T0	2.94[.45]	1.29–3.86	-.01								
3. Admonishing interaction T0	1.82[.36]	.62–2.61	.08	**-.47**							
4. Close relationship T0	2.58[.41]	1.26–3.54	-.08	**.26**	-.16						
5. Conflictual relationship T0	1.28[.48]	.11–2.39	**.76**	-.13	.12	**-.20**					
6. Student engagement T0	5.90[.83]	3.33–7.67	**-.32**	.14	-.02	**.33**	**-.44**				
7. Classroom management T0	6.14[.90]	2.50–7.75	**-.37**	.14	-.05	.15	**-.48**	**.74**			
8. Instructional strategies T0	6.06[.87]	3.25–7.75	**-.36**	.07	.04	**.24**	**-.45**	**.64**	**.70**		
9. Emotional exhaustion T0	1.66[1.04]	.00–4.63	**.36**	.03	.03	.04	**.33**	**-.43**	**-.35**	**-.34**	
10. Emotional exhaustion T1	1.47[.85]	.00–4.13	**.25**	.12	.00	.07	.14	-.20	-.19	-.16	**.63**

Note. $p < .05$, significant correlations are presented in bold.

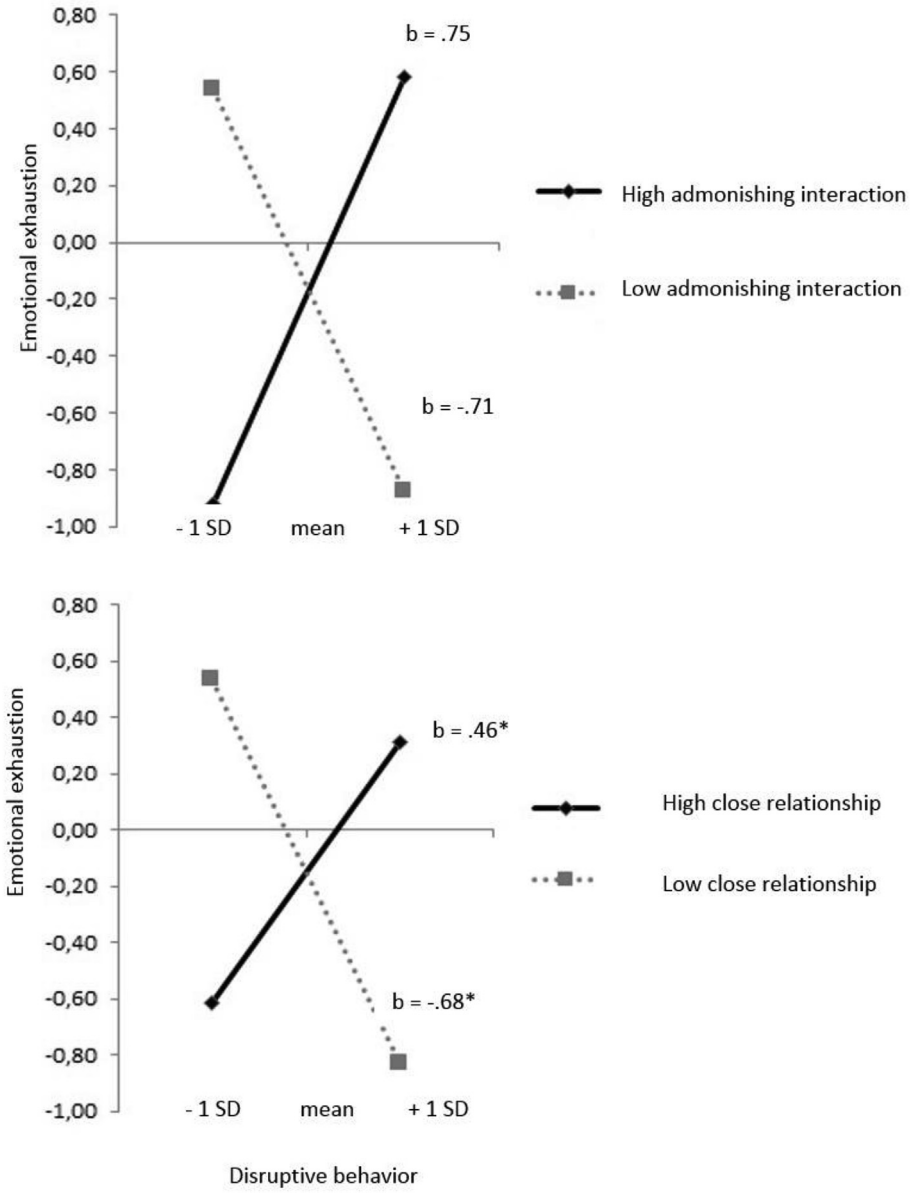

Fig. 1. Results of the final probing models for the relationship between students' disruptive behaviors and teacher emotional exhaustion as moderated by admonishing interaction style (top part) and closeness (bottom part) with coefficients represented as unstandardized regression weights (*b*).

efficacy are also depicted in Table 3. Results from probing these significant interaction terms are displayed in Fig. 2. The plot reveals that when teachers felt they were effective in engaging students in their schoolwork, levels of emotional exhaustion tended to decrease from T0 to T1 for teachers in low disruptive classrooms, but increase with increasing levels of classroom disruptive behaviors ($b = .18$, *SE* $b = .09$, $\beta = .20$, $p = .05$). In contrast, when teachers did not feel effective in engaging students, emotional exhaustion increased from T0 to T1 in low disruptive classrooms, but decreased with increasing levels of classroom disruptive behaviors ($b = -.33$, *SE* $b = .10$, $\beta = -.38$, $p = .001$; Fig. 2, top part).

There was also a significant interaction between classroom-level disruptive behaviors and self-efficacy in classroom management. Post-hoc probing of the moderation effect is plotted in Fig. 2 (bottom part). The regression lines plotted show that when teachers felt effective in managing their classroom, levels of emotional exhaustion decreased from T0 to T1 in low disruptive classrooms, but increased with increasing levels of classroom disruptive behaviors ($b = .25$, *SE* $b = .11$, $\beta = -.04$, $p = .03$). In contrast, when teachers did not feel effective in managing their classroom, levels of emotional exhaustion increased from T0 to T1 in low disruptive classrooms, but decreased with increasing levels of classroom disruptive behaviors ($b = -.44$, *SE* $b = .11$, $\beta = -.51$, $p < .001$; Fig. 2, bottom part).

5.4. Post hoc analysis

To test for a possible impact of missing data, we re-ran the model including only participants with complete data ($n = 98$; 59% female). We found no indication of impact of missing data. We also tested for group differences between teachers with low/high scores on admonishing interaction, closeness, teacher self-efficacy in student engagement, and teacher self-efficacy in classroom management, on both depersonalization symptoms and levels of

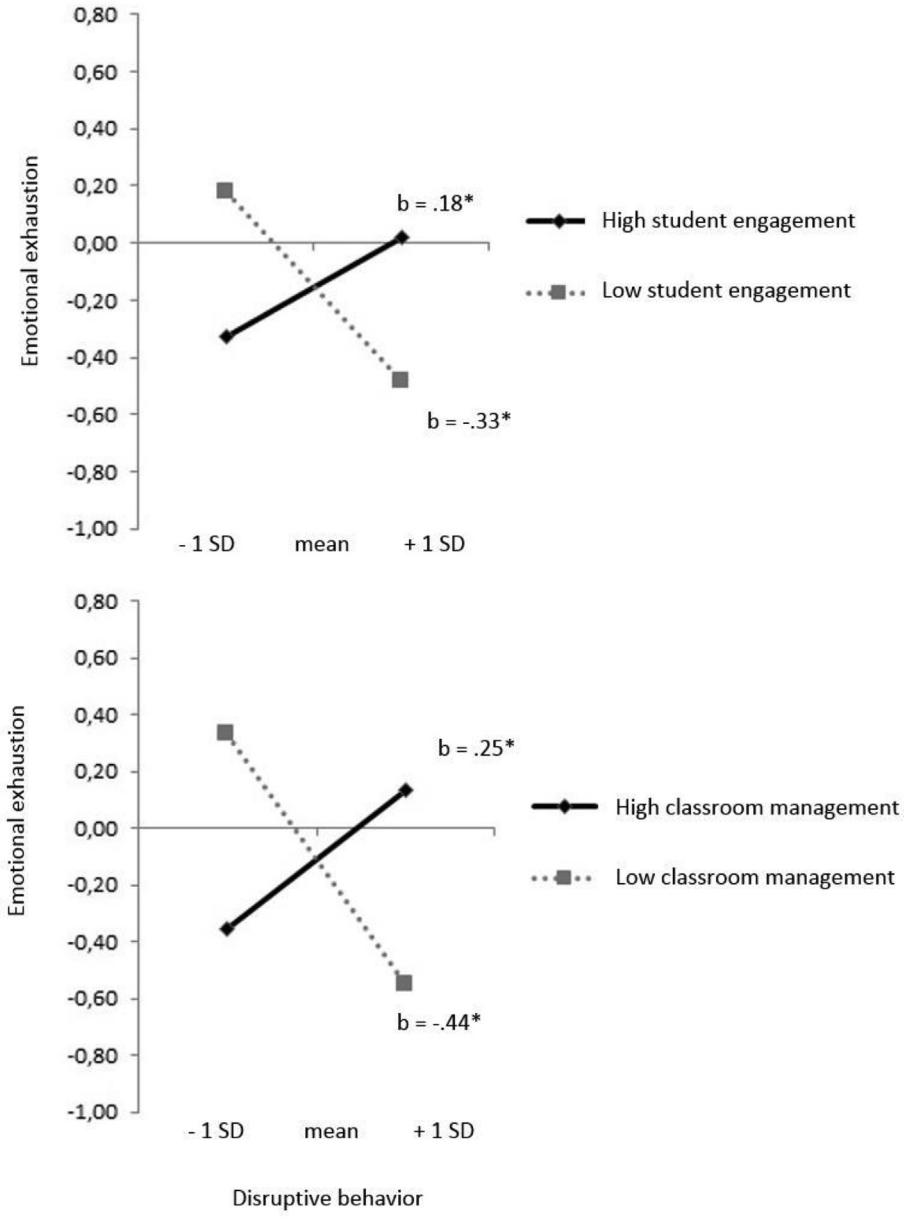

Fig. 2. Results of the final probing models for the relationship between students' disruptive behaviors and teacher emotional exhaustion as moderated by self-efficacy in student engagement (top part), and classroom management (bottom part) with coefficients represented as unstandardized regression weights (*b*).

personal accomplishment as measured by self-reports of the MBI. We found that depersonalization symptoms were higher in teachers with low scores on admonishing interaction than in teachers with higher scores on admonishing interaction, $F(1,71) = 4.21$, $p = .04$. Levels of personal accomplishment were higher in teachers with high scores on closeness than in teachers with low scores on closeness, $F(1,70) = 12.96$, $p < .001$. Similar results were found in teachers with high scores on teacher self-efficacy in student engagement, $F(1,79) = 6.70$, $p = .01$, and teacher self-efficacy in classroom management, $F(1,79) = 11.23$, $p < .001$.

6. Discussion and conclusions

Not all teachers are prone to develop stress-related complaints as a result of exposure to disruptive behaviors. We therefore examined whether among special education teachers who were exposed to relatively high levels of misbehaviors, this relationship was moderated by aspects of the student-teacher relationship and by teachers' teaching self-efficacy. We have chosen to focus on teacher symptoms of emotional exhaustion, as this component of burnout is most related to students' disruptive behaviors (Aloe et al., 2014). Several findings of this study may help clarify the conditions under which frequent exposure to classroom-level disruptive behaviors adds to the development of emotional exhaustion.

Our findings suggest that in specialized settings of special education in which students were placed due to psychiatric disabilities, some patterns of emotional exhaustion appeared similar between teachers in special education and teachers in general education. Supported by previous studies (e.g., Clunies-Ross, Little, & Kienhuis, 2008; Dicke et al., 2014; Fernet et al., 2012), we found that

symptoms of emotional exhaustion were triggered by a combination of teachers' exposure to disruptive behaviors and their relationships with students or sense of self-efficacy. These two factors contributed to the variance in the association between disruptive behaviors and the development of emotional exhaustion. Different effects were seen in teachers who show characteristics of high involvement (i.e., teachers who report close relationships with their students and effective in teaching them) versus relatively less involved teachers (i.e., teachers who report less close relationships and effectiveness in teaching them).

First of all, when teachers felt close to their students in low level disruptive classrooms, emotional exhaustion symptoms decreased (see Fig. 1). This finding is consistent with results from previous studies in general education, as positive relationships with students seem to be related to low levels of several burnout symptoms (van Droogenbroeck et al., 2014). However, this buffering impact of the student-teacher relationship needs to be interpreted with caution, as other aspects of their relationship, such as student-reported helping interaction or teacher-reported conflict with students, did not have a significant moderating effect on the impact of disruptive behaviors on emotional exhaustion in these classrooms. In addition, our results indicate that in these low level disruptive classrooms, the more competent teachers felt in engaging these students and managing their classroom, the less likely they were to experience symptoms of emotional exhaustion (see Fig. 2). These results are supported by previous studies that showed that high self-efficacy is related to low rates of teachers' burnout symptoms and intention to leave their job (e.g., Wang, Hall, & Rahimi, 2015).

Second, in the context of relatively few classroom disruptions, teachers who did not feel close to their students (see Fig. 1) or low in control to regulate their own effectiveness in teaching these students reported increases in symptoms of emotional exhaustion (see Fig. 2). Perhaps in these classes, teachers with low scores on closeness and efficacy experienced uncertainty about their role as a teacher to their students. As symptoms of emotional exhaustion are related to uncontrollable attributions (Manassero et al., 2006), these teachers who may have felt lacking in personal resources may have become more sensitive to the adverse impact of daily stressors that are associated with their teaching job. This result is also in line with the general conclusion from earlier studies conducted in inclusive education, that indicate that the development of burnout symptoms is related to relational problems with students (Taris, van Horn, Schaufeli, & Schreurs, 2004) and low sense of efficacy in teaching (Evers et al., 2002).

Our results also revealed the conditions under which teachers exposed to more disruptions felt emotionally exhausted. In these highly disruptive classes, teachers who reported closer relationships with their students showed increases in their symptoms of emotional exhaustion. Similarly, with increasing levels of disruptive behaviors, higher self-efficacy in managing the classroom was also associated with increases in emotional exhaustion. These findings may be explained by earlier studies that showed that working with people and feeling highly engaged are widely recognized as risk factors for developing burnout symptoms (e.g., Jennett, Harris, & Mesibov, 2003). When teachers invest more than they receive, they are more susceptible for developing symptoms of emotional exhaustion (Taris et al., 2004).

We also found that with increasing levels of disruptive behaviors, emotional exhaustion decreased when teachers were low-involved. This finding may point to a somewhat detached view that these teachers may have on their job. Reporting low levels of closeness and self-efficacy, in the midst of high levels of classroom disruptions, may have emotionally distanced teachers from their students and their misbehaviors, perhaps to protect themselves from the adverse impact that these severe levels of disruptions may have on their emotional wellbeing. Being less involved may have helped these teachers become detached from their stressor, i.e., classroom disruptive behaviors. The results of our post hoc analysis seem to support these speculations, as we found that depersonalization symptoms were higher in teachers with low scores on admonishing interaction than in teachers with higher scores on admonishing interaction. Levels of personal accomplishment were higher in teachers with high scores on closeness than in teachers with lower scores on closeness. With regard to personal accomplishment, similar results were found in teachers with low/high scores on teacher self-efficacy in student engagement and classroom management.

In general, the strategy of emotionally distancing from students' misbehaviors may have some short-term benefits for teachers when it comes to dealing with stress, but may also have consequences for the students involved. Teachers who report low levels of self-efficacy are less inclined to follow-up discipline problems and fail to refer students to proper care compared to teachers with high levels of efficacy (Pas, Bradshaw, Hershfeldt, & Leaf, 2010). Teachers' feelings of disengagement may thus protect them from becoming emotionally affected, but may also prevent them from addressing students' challenging behaviors. Also, previous studies identified close student-teacher interactions (e.g., Cornelius-White, 2007) and highly efficacious teachers (e.g., Allinder, 1995) as key elements contributing to students' achievements. An involved attitude can therefore be considered a necessary precondition for teachers to effectively stimulate students' development. Our findings indicate that teachers confronted with serious classroom disruptions should steer a middle course between feeling empathically involved with their class and protecting themselves against feeling frustrated and emotionally drained, striving towards a healthy balance between their job demands and the resources available to them.

6.1. Limitations, recommendations and conclusion

Some limitations of this study may guide future research. First, it is important to note that our models were specified in such a way that teachers' relationships and sense of self-efficacy impacted the impact of classroom disruptive behaviors on burnout. However, burnout in turn is likely to influence aspects of their relationships (Cano-García, Padilla-Muñoz, & Carrasco-Ortiz, 2005) and self-efficacy (Evers et al., 2002). In this study, such relations were not studied from a transactional point of view. Our results therefore provide evidence for significant associations, and should not be used to make inferences regarding the causal role of teachers' relationships and self-efficacy. Second, although we included student-reports on aspects of the relationship between students and teachers, other measures used in this study depended on self-reports by teachers. It is possible that our teachers underestimated to what extent they felt emotionally exhausted (Evers et al., 2004). Therefore, our findings on emotional exhaustion should be replicated adding student-reports to self-reports (Evers et al., 2004) and classroom observations to questionnaires (Leitner & Resch, 2005).

Third, other variables that were not included in this study but are related to the context of this setting may be involved in the development of emotional exhaustion in these teachers. Indeed, a myriad of features of the social context have been identified as contributing to teachers' attrition in special education, such as their caseload (Russ, Chiang, Rylance, & Bongers, 2001), personality factors (Prather-Jones, 2011), and perceived support by school management (Gersten, Keating, Yovanoff, & Harniss, 2001). In future studies, such factors should also be taken into account when studying the conditions under which teachers confronted with many disruptions may be vulnerable for experiencing symptoms of

stress.

With regard to implications for schools' daily practice and teacher education, our results offer more insight in teachers' characteristics that may identify which individuals are more prone to develop burnout symptoms. This study provides evidence for the moderating role of teachers' closeness towards students and self-efficacy in teaching on the relationship between classroom-level disruptive behaviors and emotional exhaustion, albeit somewhat different than what is generally found when examining this association. While we are aware of how difficult it may be to handle these challenging behaviors, teachers need to use preventive techniques which may add to their level of involvement, and therefore protect them against feeling emotionally exhausted.

Research has shown that several techniques may help in dealing with occupational stressors including mindfulness-based exercises (e.g., Roeser et al., 2013), physical activity (e.g., Gerber, Jonsdottir, Lindwall, & Ahlborg Jr., 2014), and cognitive-behavioral methods (e.g., Żołnierczyk-Zreda, 2005). Using these techniques, pre-service trainers can learn to effectively manage stressors at their work (Harris, 2011). Procedures of assigning teachers to in-service training should be considered when they teach classrooms characterized by high levels of disruptions; especially teachers with high beliefs in their responsibilities and goals as a teacher may need support against developing symptoms of emotional exhaustion.

This approach may be insufficient when classroom-level disruptive behaviors are chronic by nature. As teachers' emotional exhaustion may have adverse consequences for students' social, emotional and academic outcomes (Jennings & Greenberg, 2009), teachers dealing with very challenging classes should be equipped with techniques that directly address sources of stress, restrict misbehaviors, and improve the quality of social interactions between teachers and students. However, teachers may feel less confident to establish supportive interactions, as the high levels of classroom disruptions may actually hinder them to accomplish a positive school climate. It may be students' behavior that drives the teacher, or teachers' behaviors that support students, or they may mutually influence each other. Given the possible bidirectionality of influences, it is important to study such associations from a transactional point of view when considering ways to enhance the classroom context in special secondary education.

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Appendix A. Supplementary data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.tate.2018.06.004.

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