

A Multilevel Exploration of the Influence of Teacher Efficacy and Burnout on Response to Student Problem Behavior and School-Based Service Use

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There is an increasing concern about teacher factors, such as burnout or low efficacy, which have been hypothesized to influence student outcomes like achievement or discipline problems. The current study examined how burnout and efficacy relate to student disciplinary actions (e.g., referrals to the principal and suspensions) and referrals for school-based support services (e.g., student support and special education), while adjusting for school-, teacher-, and student-level variables. Data were collected during the fall and spring of a single school year from 491 teachers regarding 9,795 students at 31 elementary schools. Contrary to expectations, having low teacher efficacy in the fall was associated with a reduction in student referrals to the student support team. Also unexpectedly, teachers with high burnout in the fall were less likely to have students who received an out-of-school suspension by the spring. These findings enhance our understanding of the teacher factors that influence student outcomes and may inform the development of screenings and teacher-targeted interventions.

Keywords: student behavior problems, referrals, teacher efficacy, teacher burnout, multilevel modeling

The increasing pressure on teachers resulting from high stakes testing highlights potential concerns about how teacher attitudes and perceptions may influence student behavioral and academic outcomes. With increased behavioral challenges of students and a greater number of teachers leaving the profession than ever before (Marvel, Lyter, Peltola, Strizek, & Morton, 2006), the need to understand teacher factors, such as burnout, is imperative. For example, when teachers experience high levels of burnout or feel emotionally exhausted, their relationships with students and the quality of their teaching suffer (Maslach & Jackson, 1981).

Furthermore, prior research suggests that teachers with low teacher efficacy, or negative beliefs about their ability to teach students, demonstrate less effective teaching practices, which result in poorer student achievement (Skaalvik & Skaalvik, 2007).

Contextual factors, such as the school's organizational climate or the level of disorder within the school or classroom environment, may also influence the way in which teachers manage discipline problems or use school-based services (Domitrovich et al., 2008). Yet there has been limited research examining how malleable teacher factors, such as efficacy and burnout, in conjunction with school contextual factors influence the way in which students are referred for discipline problems or to school-based services. Having an enhanced understanding of the influence of these teacher and school factors on student discipline referrals and service use may inform the development of school improvement initiatives and professional development activities. Such activities could target teacher efficacy and teacher burnout in an effort to ensure appropriate use of services and discipline management practices.

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Teacher Efficacy

A large body of research has documented the significance of self-efficacy, which is defined as one's general beliefs about his or her own "capacity to organize and execute" (Bandura, 1977, p. 3) the tasks required. Self-efficacy influences behavior, affects goal setting, and affects the ability to persist in difficult tasks. Rooted in social learning theory (Bandura, 1977; Rotter, 1960), the concept has been applied to teaching. Teachers who are low in general teaching efficacy typically believe that a student's potential is "significantly limited by factors external to the teacher, such as home environment, family background, and parental influences" (Gibson & Dembo, 1984, p. 574), rendering those teachers less motivated to reach out to students (Hoy & Woolfolk, 1993). When teachers feel that they are unable to address a student's needs in the classroom, they may refer the student for academic or disciplinary services outside of the classroom.

A teacher's sense of efficacy has been positively linked with several predictors and indicators of student achievement (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). For example, studies have shown that teacher efficacy is positively correlated with effective instruction, proactive and positive classroom management (Woolfolk, 2007), and higher student academic performance (Skaalvik & Skaalvik, 2007; Tschannen-Moran & Woolfolk Hoy, 2001; Wolters & Daugherty, 2007). There is some evidence that teachers with low efficacy may be more likely to use punitive or reactive discipline strategies (e.g., office discipline referrals) as a means of behavior management (Woolfolk, Rosoff, & Hoy, 1990). Teachers with high efficacy also tend to implement organized instructional strategies, be more open to new teaching methods, and be more persistent when working with struggling students (Allinder, 1994; Gibson & Dembo, 1984). Finally, teachers with high efficacy are more accepting of consultation services and tend to be more willing to implement interventions suggested by consultants (DeForest & Hughes, 1992). Therefore, high efficacy teachers may be able to reach higher percentages of students, despite diverse learning and behavioral needs. Furthermore, prior research indicates that teachers with high teacher efficacy are less likely to refer a student for

special education services (Meijer & Foster, 1988; Soodak & Podell, 1993). Although high efficacy is linked with greater acceptance of consultation, it is unknown whether high efficacy teachers refer students for other types of academic services at higher rates. Taken together, the research on teacher efficacy suggests that it may be an important predictor of the teacher's use of different discipline strategies and support services.

Teacher Burnout

A related construct is teacher burnout, which is often defined as a psychological condition comprised of emotional exhaustion, depersonalization, and reduced personal accomplishment that occurs as a result of work-related stressors (Maslach, 1976; Maslach & Jackson, 1981). Teachers who experience burnout are not emotionally available to their students. They often develop negative attitudes toward students, parents, and the workplace and believe that they can no longer affect student learning (Maslach, Jackson, & Leiter, 1996). Furthermore, teachers who experience high levels of burnout are at increased risk of experiencing both physical and mental health problems, which could result in absenteeism (Schonfeld, 2001), diminished performance, and irritability (Huberman, 1993). These emotions and changes in teacher behavior could in turn negatively affect their students and the educational system (Hughes, 2001) and result in student apathy (Jenkins & Calhoun, 1991). Diminished teacher performance in the classroom may result in students having increased behavioral and academic problems, which could lead to greater referrals for discipline and academic concerns.

Link Between Efficacy and Burnout

Mastery experiences have a significant influence on the development of teacher efficacy (Bandura, 1977), which may influence teachers' attitudes toward work and feelings of burnout. When a teacher feels successful at educating students, perceived efficacy develops as does the expectation of future successful teaching performance (Tschannen-Moran & Woolfolk Hoy, 2007). In contrast, teachers who are unable to maintain orderly classrooms often fail to effectively meet educational objectives, per-

ceive themselves as poor at classroom management, and report low efficacy (Friedman & Farber, 1992). This can lead to additional stress and pressures that are generated both internally (e.g., self-doubt) and externally (e.g., administrative reprimand, low student assessment results). Not surprisingly, teachers with lower efficacy also tend to report higher rates of burnout (Chwalisz, Altmaier, & Russell, 1992).

Interactions Between Student, Teacher, and School Contexts

There is growing interest in the influence of school contextual factors on student outcomes. Drawing on organizational behavioral (Hoy & Feldman, 1987; Hoy, Hannum, & Tschannen-Moran, 1998) and social disorganization theories (e.g., Shaw & McKay, 1942), previous research has linked school- and classroom-level indicators of disorder with higher rates of student behavior problems (Birnbaum et al., 2003; Plank, Bradshaw, & Young, 2009). However, few studies have examined school indicators of disorder in relation to the management of discipline problems or use of school-based services. When faced with higher rates of school disorder or classroom disruption, staff may become more reliant on reactive rather than proactive discipline strategies, such as sending students to the office or using suspensions. In more disruptive classrooms, students may be distracted from learning and thus teachers may perceive an increased need to use school-based academic support, such as a consultative teaming or the special education referral process.

There is some research that suggests that teachers do consider student contextual variables (e.g., ability, socioeconomic status, and motivation) and school-level organizational variables (e.g., principal leadership, adequacy of resources, and collegial support; Tschannen-Moran & Woolfolk Hoy, 2001) when intervening with or working with students. In schools lacking resources, leadership, and organizational support, it may be more difficult for teachers with higher levels of burnout or less efficacy to meet the needs of their students without outside help. By examining interactions between teacher efficacy, burnout, school organizational health, and student baseline ratings of problem behaviors, we may identify the combinations of circum-

stances, which prompt teachers to access outside supports for students.

Overview of the Current Study

The current study examined the influence of teacher-level variables, such as burnout and efficacy, on student disciplinary actions (e.g., referrals to the principal, suspensions) and referrals to school-based support services (e.g., special education). We also adjusted for school-level contextual factors and student-level characteristics. The primary purpose of this study was to examine malleable teacher characteristics, such as efficacy and burnout, to inform the literature about professional development aimed at improving student outcomes. Student and teacher demographics such as gender and ethnicity are unchangeable factors, and thus were adjusted for as covariates (Bevans, Bradshaw, Miech, & Leaf, 2007). On the basis of the extant literature that suggests that teachers experiencing burnout and low efficacy are less effective at meeting student needs (Skaalvik & Skaalvik, 2007), we hypothesized that low teacher efficacy and high burnout would be associated with increased utilization of school-based services and disciplinary actions over the course of the school year. We examined the association between these factors, while adjusting for student demographics, baseline ratings of problem behaviors, and school-level disorder.

It was also hypothesized that there would be an interaction between teacher efficacy and burnout (Chwalisz et al., 1992), such that the teachers experiencing the highest levels of burnout and lowest self-efficacy would have the greatest need for outside assistance, and therefore would use these services most frequently. Given our interest in the contextual factors, we also examined some cross-level interactions among student-level baseline ratings of problem behaviors, teacher characteristics, and school contextual factors. In particular, we hypothesized that teachers with less teaching experience in schools with poor organizational health would be more likely to refer students for academic support or disciplinary action (Skaalvik & Skaalvik, 2007; Tschannen-Moran & Woolfolk Hoy, 2007). We also expected that teachers with low efficacy or high burnout would be more likely to refer students with elevated base-

line ratings of problem behaviors than their colleagues. Finally, consistent with social disorganization theory (Shaw & McKay, 1942), we hypothesized that teachers working in poorly organized schools, who also experienced low efficacy or high burnout would have the highest referral rates. As noted earlier, teacher selection and student demographics (e.g., race/ethnicity; see Table 1) were included in the models as covariates.

Method

Data

Data for the current study were collected during the fall and spring of the 2007–2008 school year regarding 9,795 students (Grades K–5), as rated by 491 general education teachers in 31 Maryland public elementary schools involved in a study examining school reform initiatives (see Table 1 for demographic information of participants).

Measures

The Teacher Observation of Classroom Adaptation–Checklist (TOCA-C; Koth, Brad-

shaw, & Leaf, 2009) was completed by each homeroom teacher in reference to each student in the class in October and May of the 2007–2008 school year. The TOCA-C is a brief checklist of student behavior problems and adjustment to the classroom environment. Prior research has shown it to have high test–retest reliability, internal consistency, and predictive validity (for a review, see Koth et al., 2009). The TOCA-C includes a measure of concentration problems (Cronbach’s alpha [α] = .95) and disruptive behavior (α = .90). Teachers responded to seven items regarding concentration problems (e.g., *pays attention, is easily distracted*) and nine items regarding disruptive behavior (e.g., *breaks rules, harms property, fights*), on a 6-point scale from “*never*” to “*almost always*.” Both scales were scored such that higher scores reflected greater problems in that domain.

Teachers also responded to a series of five questions indicating whether each child had been referred for academic services and disciplinary problems during that school year. Specifically, the items assessed whether a student had been *referred to the child study/student support team (SST) this year, referred to be*

Table 1
Student, Teacher, and School Demographic Characteristics

Student characteristics (<i>N</i> = 13,640 students)	<i>N</i> (%)
Gender—male	7099 (52.0)
Race/ethnicity	
American Indian/Alaskan Native	78 (0.6)
African American	7496 (59.1)
Hispanic	941 (7.4)
Asian/Pacific Islander	450 (3.5)
White	3729 (29.4)
Receiving free and reduced meals	5214 (46.5)
Teacher characteristics (<i>N</i> = 641 teachers)	<i>N</i> (%)
Gender—female	484 (95.5)
Race/ethnicity	
African American	61 (12.1)
White	431 (84.7)
Other	17 (3.2)
Highest education level—graduate degree	303 (59.4)
School characteristics (<i>N</i> = 31 schools)	Mean (<i>SD</i>)
Student mobility	33.83 (25.62)
School enrollment	461.74 (141.53)
Student suspension rate	9.79 (7.26)
% Students receiving free and reduced meals	45.20 (18.28)

Note. Percentages reported here are valid percents to account for missing data.

assessed for special education services this year, and had been sent to the principal's office, to in-school suspension or to an alternative classroom, and home or removed from school (i.e., out-of-school suspension). The items pertaining to student support and special education assessment referrals are based on a modified version of the Services Assessment for Children and Adolescents (Horwitz et al., 2001).

All school staff also completed a survey that included a measure of the school's organizational health (Organizational Health Inventory [OHI]; Hoy & Feldman, 1987). The 31-item OHI assessed aspects of principal leadership, the school's ability to lobby for resources, collegial relationships among teachers and staff, and student work ethic and orderliness. A single score representing an average across all OHI items was calculated for each staff member ($\alpha = .94$). Consistent with the procedures recommended by Hoy and Tarter (1997), a single school-level average of the staff members' scores on the OHI was computed and included as a school-level variable.

Two additional subscales on the staff survey assessed self-reported teacher burnout and teacher efficacy. The burnout scale was derived from the measure by Maslach and Jackson (1981); it was intended to assess teachers' experience of emotional exhaustion and exasperation, and comprised four items (e.g., *I feel emotionally drained from my work; I feel like I am at the end of my rope*; $\alpha = .90$). The efficacy scale was derived from Hoy and Woolfolk (1993) and comprised five items assessing one's ability to handle students with behavior problems (e.g., *I can effectively work with deviant or disruptive students; I can manage almost any student behavior problem*; $\alpha = .84$). This measure was selected to be specific to efficacy regarding the handling of student behavioral problems rather than general teaching efficacy.

Demographic data on the individual teachers (e.g., gender, ethnicity, training, and experience) were obtained through a brief self-report measure completed by all participating staff. With regard to ethnicity, teachers endorsed one of the following five race/ethnicity groupings used by the state (African American or Black, American Indian or Alaskan Native, Asian or Pacific Islander, Caucasian or White, and His-

panic). Given the relatively small sample of non-White staff, we dummy coded the ethnicity variable to be White (0) and non-White (1). Demographic data on the individual students (e.g., race/ethnicity, free and reduced meals status, gender) were obtained from the school district. Given the large samples of both African American and White students, two dummy codes were created (one for each grouping). The White category was coded White (1) and non-White (0) and the African American/Black category was coded African American (1) and non-African American (0). School-level data (e.g., enrollment, student mobility, suspension rate) were also obtained for that school year from the Maryland State Department of Education. See Tables 2, 3, and 4 for the descriptive statistics and correlations between the variables measured at each level.

Procedure

Staff reports of the school's organizational health, teacher efficacy, and burnout were collected in the fall (October) via an individually addressed survey packet. The survey packets were mailed in bulk to the school and distributed to school staff mailboxes by the principal, school psychologist, or administrative assistant. Staff participation was voluntary and participants provided written consent. Staff were informed in writing that the purpose of the study was to examine the influence of school reform efforts on students and teachers, including the way in which teachers perceive the school environment. To ensure confidentiality, staff members completed the study materials on their own time and returned the materials directly to the researchers through the US mail in the self-addressed stamped envelope provided by the researchers. Each staff questionnaire packet included a small incentive (e.g., disposable ballpoint pen). The staff response rate in October was 76.1%.

Similarly, the TOCA-Cs were mailed to the school in October and May in packets for each classroom teacher. Each TOCA-C specified the student's school identification number. Teachers completed a TOCA-C for each student in the class, placed the TOCA-Cs in a sealed envelope, and returned the envelope to the school administrator. The TOCA-Cs were then mailed back to the researchers. The response rate for the TOCA-Cs was 95.7% in fall and 92.6% in spring. The commit-

Table 2
Correlations Among Student-Level Variables

Student-level factors	Concentration problems	Disruptive behavior	Gender	White	African American	FARMs status
Teacher rating of student concentration problems	2.17 (1.18)	.60*	.26*	-.08*	.13*	.15*
Teacher rating of student disruptive behavior problems		2.02 (0.85)	.19*	-.13*	.19*	.13*
Student gender			0.52 (0.50)	.00	.00	-.01
Student ethnicity—White				0.59 (0.49)	-.77*	-.23*
Student ethnicity—African American					0.29 (0.46)	.17*
Student receives FARMs						0.45 (0.50)

Note. Means and standard deviations (reported in parentheses) are displayed on the diagonal. We conducted collinearity diagnostics and the VIF and tolerance were not elevated, thereby indicating that data are not collinear despite the large inter-correlations among some variables. FARMs indicates free and reduced priced meals. FARMs is coded 1, if the child receives free or reduced-priced meals, and 0 if not. Student gender is coded 1 for male and 0 for female. Ethnicity was coded 1 for White and 1 for African American.

* $p < .05$.

tee on human subjects' research at the Johns Hopkins Bloomberg School of Public Health provided approval for this study.

Analyses

Three-level models were conducted in HLM 6.01 (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2004) to examine cross-level effects (i.e., the effects of and interactions between school-, teacher-, and student-level variables; Raudenbush & Bryk, 2002) on each of the five dichotomous student outcomes. The outcomes were assessed through the spring TOCA-C, indicating whether the student had been (a) referred to the student support team (SST), (b) referred for special education assessment, (c) sent to the principal's office, (d) suspended in-school, or (e) suspended out-of-school. Student demographics included at level 1 were gender (0 = female, 1 = male), Caucasian/White ethnicity (0 = non-White, 1 = White), African American/Black ethnicity (0 = non-African American/Black, 1 = African American/Black), whether the child received free and reduced priced meals (FARMs), and teacher ratings of conduct and disruptive behaviors via the fall TOCA-C. We performed analyses in SPSS 16.0 to explore for potential collinearity concerns among the student and staff-level covariates; however, the VIF and tolerance indicated that collinearity among the variables was not a concern (Tabachnick & Fidell, 2001). The correlations between all student covariates and teacher covariates appear in Tables 2

and 3. The HLM models were also built one variable and level at a time to ensure that changes in the direction of effects did not occur; this approach is also recommended for detecting collinearity (Raudenbush & Bryk, 2002).

The classroom-level aggregate of the dependent variable (e.g., for the SST outcome, the classroom covariate was the percent of students in the classroom referred to SST), teacher demographics (gender, ethnicity), training (years of experience and attainment of a graduate degree), and fall self-reports of teacher efficacy and burnout were entered at level 2. Efficacy and burnout were dichotomized to represent approximately the top tertile in burnout and the bottom tertile in efficacy. Specifically, teachers with scores within the bottom 29th percentile¹ on efficacy and the highest 35th percentile² on burnout were coded as 1 (i.e., high risk), and all others were coded as 0 (i.e., low risk). We believe that a dichotomized approach to assessing efficacy and burnout is more instructive for developing screening measures to identify teachers at

¹ There was no precise cut point to generate a 33rd percentile score for teacher efficacy. The 29th percentile includes values of 0 through 2.75 (on a scale of 0 to 4). The next score on the efficacy scale included too many teachers.

² There was no precise cut point to generate a 33rd percentile score for burnout either. The 35th percentile includes values of 2.46 through 4 (on a scale of 0 to 4). Decreasing the value would have moved the cut point even further from the 33rd percentile.

Table 3
Correlations Among Classroom/Teacher Variables

Classroom/teacher-level factors	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
I. % Students referred to SST	7.81 (9.08)										
II. % Students referred for special education assessment	.24*	4.41 (6.49)									
III. % Students with in-school suspension	.12*	.18*	5.89 (9.43)								
IV. % Students sent to the principal's office	.16*	.17*	.48*	8.97 (10.37)							
V. % Students with out-of-school suspension	.03	.20*	.58*	.51*	1.32 (3.51)						
VI. Years of teaching experience	.02	.02	-.03	-.08	-.04	8.45 (8.62)					
VII. Teacher has a graduate degree	-.05	-.08	.07	.09*	.04	-.38*	0.59 (0.49)				
VIII. Teacher ethnicity	-.10*	.00	.02	.06	.10*	.09*	-.07	0.15 (0.36)			
IX. Teacher gender	.00	.03	.04	.09*	-.01	-.04	.04	.06	0.05 (0.22)		
X. High teacher burnout	.07	.11*	.08	.13*	-.03	-.02	-.07	.02	-.03	0.35 (0.48)	
XI. Low teacher efficacy	.00	-.01	.00	.02	-.04	-.07	-.01	-.01	-.05	.18*	0.29 (0.45)

Note. Means and standard deviations (reported in parentheses) are displayed on the diagonal. Variables I–V are moderately correlated; however, they are not included in the same statistical model. Each of these variables is only included in the outcome analysis with its corresponding dependent variable. Inspection of the VIF and tolerance indicated that these variables are not collinear. SST indicates Student Support Team. Ethnicity was dummy coded 0 for White and 1 for non-White. Gender was dummy coded 0 for female and 1 for male.

* $p < .05$.

Table 4
Correlations Among School-Level Covariates

School-level factors	OHI	Mobility	Suspension	FARMs	Enrollment
Organizational health (OHI)	3.06 (0.19)	0.19	-.41*	-.05	-.30
Student mobility rate (%)		33.83 (25.62)	.33	.36*	-.27
Out-of-school suspension rate ^a			9.79 (7.26)	.37*	-.11
Students receiving FARMs (%)				45.20 (18.28)	-.26
Student enrollment					4.62 (1.42)

Note. Means and standard deviations (reported in parentheses) are displayed on the diagonal. OHI represents the school-level average of all teachers' scores on the Organizational Health Inventory. Mobility is the total percentage of new entrants and withdrawals from the school. FARMs indicate free or reduced-priced meals. Student enrollment was divided by 100 to facilitate interpretation of the coefficient.

^a Data came from the state department and reflect a school-level duplicated count of students receiving an out-of-school suspension divided by student enrollment.

* $p < .05$.

highest risk for experiencing problems associated with efficacy and burnout. Consequently, all analyses (i.e., correlations in SPSS 16.0 and HLM analyses) were conducted with these two variables dichotomized. An interaction term was also created by multiplying teachers' scores (0 or 1) on burnout and efficacy, indicating the teachers who rated themselves as the least efficacious as well as experiencing the greatest burnout.

All variables at levels 1 and 2 were tested for randomly varying slopes (Raudenbush & Bryk, 2002). Teacher-rated efficacy and burnout were modeled for individual level-1 covariates with randomly varying slopes when applicable. School-level indicators of disorder (i.e., mobility, enrollment, percentage of students receiving FARMs, percentage of students suspended, and the average staff rating of organizational health) were modeled for the intercept at level 3. Only the average staff ratings of overall organizational health were modeled for randomly varying slopes of teacher efficacy, burnout, years of experience, and whether a teacher had a graduate degree, to test for cross-level interactions between these variables.

Missing data analyses. Using student data provided by teachers, analyses were conducted to ensure that teachers who did and did not provide teacher information reported equivalent levels of student referrals. This was possible because almost all teachers provided student data, including referral information, even when they did not provide teacher-specific data. Among the teachers

who did not submit staff data, there were no differences in the percent of students referred for any of the five outcomes when compared with those who did submit staff data.

Results

Exploration of Within- and Cross-Level Interactions

We first explored the potential influence of the interaction between high burnout and low efficacy on the five outcomes. The interaction term was nonsignificant in all five multilevel models; therefore, the interaction term was excluded in the subsequent models, which focused on the main effects of both burnout and efficacy, while adjusting for the other student-, teacher-, and school-level covariates.

Randomly varying slopes were tested for each variable at levels 1 and 2, for each outcome. Only student disruptive behavior had a randomly varying slope when predicting referrals to SST. There were no significant interactions between disruptive behavior and teacher efficacy or burnout. At level 2, whether a teacher had a graduate degree randomly varied when predicting referrals to SST. The interaction between a teacher having a graduate degree and school-level organizational health was also nonsignificant. These interaction terms were, however, retained in the final SST model. Student-level variables, teacher efficacy, burnout, experience, and graduate degree did not have ran-

domly varying slopes for any other outcomes; therefore, no interactions among these variables were explored. The classroom-level referral rates randomly varied when predicting referrals to special education and in-school suspension. Teacher gender randomly varied when predicting out-of-school suspensions. These slopes were freed (i.e., an error term was included); however, the variance was not modeled.

Influence of Teacher Efficacy and Burnout on Academic Service Use

After controlling for student-, teacher- and school-level covariates, teachers with low ef-

ficacy for handling behavior concerns were 23% less likely than their colleagues to refer students to the SST (adjusted odds ratio [AOR] = 0.77, $p = .01$; see Table 5). Burnout was not significantly related to the likelihood of a student being referred to SST. With regard to referrals to special education, neither low efficacy nor high burnout were significant predictors after adjusting for variables at other levels.

Influence of Teacher Efficacy and Burnout on Discipline Problems

Interestingly, neither teacher efficacy nor burnout was associated with referrals to the

Table 5

Influence of Fall Teacher and School Characteristics on Spring Student Academic Referrals

Predictor variables	Referral to student support team (SST) ^a		Referral to special education	
	Odds ratio	CI	Odds ratio	CI
Student level				
Concentration problems	2.71*	2.48–2.95	2.78*	2.52–3.06
Disruptive behaviors	1.09	0.94–1.27	0.78*	0.71–0.87
FARMs status	1.46*	1.29–1.67	1.34*	1.09–1.64
Gender	1.29*	1.15–1.45	1.21*	1.01–1.46
Ethnicity—White	0.97	0.77–1.22	0.81	0.59–1.13
Ethnicity—African American	0.87	0.74–1.02	0.74*	0.59–0.93
Teacher/classroom level				
% of students in class who received each dependent variable	1.04*	1.03–1.05	1.07*	1.05–1.10
Teacher-rated burnout	1.04	0.89–1.22	0.99	0.75–1.32
Teacher-rated efficacy	0.77*	0.64–0.93	0.88	0.73–1.06
Years spent teaching	1.00	1.00–1.01	1.00	0.99–1.01
Graduate degree	1.08	0.83–1.41	0.91	0.72–1.15
Ethnicity	0.92	0.72–1.16	1.06	0.82–1.35
Gender	0.68*	0.53–0.86	0.71	0.48–1.05
School level				
Average teacher rating of organizational health	0.91	0.44–1.87	1.11	0.52–2.37
Student mobility rates	1.00	1.00–1.00	1.00	1.00–1.00
Student suspension rates	1.02*	1.01–1.04	1.01	1.00–1.03
FARM rates	1.00	0.99–1.00	1.00	0.99–1.01
Enrollment	0.93	0.87–0.99	1.00	0.90–1.12

Note. Student and teacher demographics are dichotomous variables where 1 indicates that a student receives free or reduced priced meals (FARMs), the student or teacher is male, the student is White or the student is African American, and the teacher is non-White. Teacher-rated burnout and efficacy are dichotomous variables where 1 indicates that the teacher is high on burnout and low on efficacy. Graduate degree is a dichotomous variable where 1 indicates that the teacher has a graduate degree. The remaining variables are continuous. The percent of students who received the dependent variable refers to the aggregate included in each model (e.g., the percent of students in each teacher's classroom who was referred to SST is used in the SST analysis). CI indicates 95% confidence interval for the odds ratio.

^a Two interactions were included in this model: teacher efficacy and burnout with student disruptive behavior, and school-level OHI with teacher graduate degree. Neither interaction was significant; therefore, the results are not reported in the table.

* $p < .05$.

principal's office or in-school suspension, after controlling for the other student-, teacher-, and school-level variables (see Table 6). Low teacher efficacy was not associated with the odds of a student being suspended; however, teachers with high burnout in the fall were 32% less likely to report that a student had received an out-of-school suspension (AOR = 0.68, $p = .04$).

Influence of Other Teacher/Classroom Variables on Referral Rates

The percent of students in the classroom who received the dependent variable (e.g., when predicting SST referrals, the percent of students in the class referred to SST) was significant in

predicting each outcome (see Tables 5 and 6). This means that after controlling for a student's individual characteristics and the school- and other teacher-level covariates, students in classrooms with a high proportion of referrals were more likely to be referred. Therefore, a student's likelihood of receiving a referral varied across the classrooms based on the difference in the overall level of referrals made by the teacher. With every 1% increase in the percentage of students in the classroom referred, the odds of an individual student being referred to the SST and to the principal increased 4%, for a special education assessment or for in-school suspension increased 7%, and out-of-school suspension increased 17%. This suggests that regardless of the stu-

Table 6
Influence of Fall Teacher and School Characteristics on Spring Discipline Referrals

Predictor variables	Referral to principal's office		In-school suspension		Out-of-school suspension	
	Odds ratio	CI	Odds ratio	CI	Odds ratio	CI
Student level						
Concentration problems	1.18*	1.09–1.28	1.23*	1.12–1.35	1.11	0.96–1.30
Disruptive behaviors	7.37*	6.63–8.19	5.24*	4.67–5.88	4.83*	4.10–5.68
FARMs status	1.08	0.95–1.24	1.09	0.93–1.28	1.29*	1.03–1.62
Gender	2.56*	2.26–2.90	2.20*	1.89–2.56	2.98*	2.32–3.82
Ethnicity—White	0.99	0.78–1.25	1.13	0.86–1.49	1.15	0.72–1.82
Ethnicity—African American	1.30*	1.01–1.67	1.63*	1.30–2.04	1.38	0.93–2.05
Teacher/classroom level						
% of students in the class who received each dependent variable	1.04*	1.03–1.05	1.07*	1.05–1.10	1.17*	1.14–1.21
Teacher-rated burnout	0.80	0.57–1.12	1.12	0.81–1.54	0.68*	0.51–0.92
Teacher-rated efficacy	0.94	0.70–1.25	0.81	0.60–1.09	0.94	0.73–1.23
Years spent teaching	1.00	0.99–1.02	1.00	0.98–1.01	0.99	0.97–1.01
Graduate degree	1.36*	1.06–1.74	1.21	0.90–1.63	0.83	0.65–1.06
Ethnicity	1.40	0.98–2.01	1.55*	1.20–1.99	1.13	0.75–1.69
Gender	1.07	0.58–1.96	0.97	0.54–1.75	2.05	0.99–4.28
School level						
Average of teacher ratings of organizational health	1.76	0.77–4.02	0.80	0.19–3.41	0.94	0.40–2.23
Student mobility rates	1.00	1.00–1.01	1.00	0.99–1.00	1.00	1.00–1.00
Student suspension rates	1.01	0.99–1.03	0.98	0.95–1.02	1.02	0.99–1.04
FARMs rates	0.99	0.99–1.00	1.01	1.00–1.02	1.02*	1.01–1.03
Enrollment	0.96	0.85–1.09	1.08	0.94–1.24	1.12	0.97–1.29

Note. Student and teacher demographics are dichotomous variables, where 1 indicates that a student receives free or reduced priced meals (FARMs), the student or teacher is male, the student is White or the student is African American, and the teacher is non-White. Teacher-rated burnout and efficacy are dichotomous variables where 1 indicates that the teacher is high on burnout and low on efficacy. Graduate degree is a dichotomous variable where 1 indicates that the teacher has a graduate degree. The remaining variables are continuous. The percent of students who received the dependent variable refers to the aggregate included in each model (e.g., the percent of students in each teacher's classroom who received an out-of-school suspension is used in the out-of-school suspension analysis). CI indicates 95% confidence interval for the odds ratio.

* $p < .05$.

dents' level of individual risk, their risk of receiving a referral is lower in classrooms where the overall rate of referrals is lower, but elevated in classrooms where the referral rate is higher. No other teacher-level variables were consistently significant in predicting student referrals (see Tables 5 and 6). There are no consistently significant correlations between teacher demographics and this classroom-level referral rate (see Table 3).

Effects of Student Demographics on Referral Rates

As expected, teacher ratings of a student's disruptive behaviors and concentration problems were significantly related with almost all outcomes. The odds of being referred increased as a teacher's ratings of the student's disruptive behavior and concentration problems increased. These effects were particularly pronounced for concentration problems in predicting referrals for academic problems. For example, a 1-point increase (on a scale of 0 to 4) in concentration problems was associated with a nearly 3-fold increase in the odds of being referred to SST and for a special education assessment. The effects of disruptive behavior ratings on discipline referrals were even stronger. For example, a 1-point increase in disruptive behavior ratings was associated with 5- and 7-fold increases in the odds of being suspended and being sent to the principal's office, respectively (see Tables 5 and 6). Student gender was also significant for all outcomes, such that boys were about 30% more likely to be referred to SST, 21% more likely to be referred for a special education assessment, and two to three times as likely to receive discipline referrals. Ethnicity and FARMs status were not consistently associated with student referrals.

Influence of School-Level Predictors on Referral Rates

Of note, school-level predictors (i.e., school enrollment, average staff rating of OHI, FARMs rate, mobility, and suspension rate) were not consistently significant in predicting student referral rates after controlling for the other covariates in the multilevel models. The school-level student suspension rate was a significant predic-

tor of SST referrals, such that a 1% increase in suspension rates was associated with a 2% increase in students' odds of being referred to the SST ($AOR = 1.02, p < .01$). The percent of students receiving FARMs also was significantly associated with students' risk for being suspended, such that a 1% increase in the FARMs rate was associated with a 2% increase in a student's odds of receiving an out-of-school suspension ($AOR = 1.02, p < .01$). These associations were not, however, replicated across the other student outcomes.

Discussion

The primary objective of this study was to examine whether high teacher burnout and low efficacy were associated with increased student referrals for academic support services (e.g., SST/Child Study team, special education) or disciplinary actions, while adjusting for student-, teacher-, and school-level characteristics. Efficacy and burnout were not significantly related to special education referrals, referrals to the principal's office, or in-school suspensions. However, teacher efficacy and burnout were associated with SST referrals and out-of-school suspensions, but the direction of the effects were opposite of what was expected. Specifically, students were less likely to be referred to SST when their teacher reported low efficacy. In addition, students were less likely to experience an out-of-school suspension when their teacher reported a high level of burnout.

With regard to the finding for SST referrals, previous research has found that teachers with high efficacy are more accepting of consultation services and more willing to implement interventions suggested by consultants (DeForest & Hughes, 1992). It is possible that teachers with low efficacy, in avoidance of such collaboration, referred students to SST at a decreased rate. It is likely that the relationship between suspension rates and burnout is complex. Previous research indicates that student discipline problems rank as one of the leading sources of stress among teachers (Supaporn, Dodds, & Griffin, 2003) and can contribute to teacher burnout (Kokkinos, Panayiotou, & Davazoglou, 2005). This suggests that there may be a feedback loop between burnout and student discipline problems. Future studies with data

spanning multiple school years are needed to better understand the potentially complex association between burnout and referral-making. It is also possible that the decreased risk of suspension observed among teachers high on burnout is a byproduct of withdrawal or decreased engagement in teaching and meeting the needs of students. Evidence of a potential association between burnout and teacher disengagement comes from a study of over 2,000 Finnish teachers in which increased burnout was found to be associated with withdrawal from teaching (Hakanen, Bakker, & Schaufeli, 2006). Finally, learned helplessness (Seligman, 1975) may play a role in both the decreased referrals to SST and out-of school suspensions. It is also possible that learned helplessness manifested as more general depressive-like symptoms (i.e., decreased feelings of efficacy in handling student concerns; Bandura, 1977). Future research should examine the extent to which teachers' emotional function or mental health status influences teachers' use of discipline referrals and student support services (Domitrovich et al., 2008).

It is important to consider some limitations of the current study when reviewing these findings. The 31 schools participating in the study were from a single state and were not a random sampling of elementary schools. Although the schools were relatively diverse with regard to the student demographics (e.g., FARMs rate, ethnicity), these findings may not generalize to other samples. Similarly, we only examined elementary school teachers; the findings may be different for teachers at the secondary level. Furthermore, the schools were implementing the universal system of school-wide positive behavioral interventions and supports (PBIS; Horner et al., 2009), which may have influenced the pattern of findings. Although previous studies have reported that schools implementing the universal system of PBIS experience reductions in the overall rates of referrals at the school-level (Bradshaw, Mitchell, & Leaf, in press; Horner et al., 2009), less is known about the affect of school-wide PBIS on the classroom context, or teacher factors like burnout and efficacy. Because all schools were implementing the model with high fidelity, we were unable to systematically examine variation in the influ-

ence of PBIS on the outcomes of the current study. Future research should explore potential interactions between PBIS and teacher characteristics such as burnout or efficacy (Bradshaw, Koth, Bevans, Jalongo, & Leaf, 2008).

Although the overall participation rate was relatively high for a longitudinal study of this scale, teacher participation was voluntary. Therefore, some teachers—perhaps those who were the most burned out or least efficacious—may have chosen not to participate. However, as noted earlier, the teachers who did not provide staff information did not differ from the teachers in these analyses in terms of classroom-level referral rates. Although strengths of this study include the use of longitudinal and multilevel data, it is important to note that causality cannot be inferred based on these data. Furthermore, much of the data about the teachers and students were collected through teacher reports, and thus may have shared method variance.

Implications for Future Research and School Psychologists

There are a number of important implications of these findings for future research and school psychologists. For example, future research should explore the influence of these and other teacher factors on other student outcomes, such as academic achievement using administrative data. Another way to expand the current study is to explore the characteristics of teachers who report low efficacy or high burnout. Data on a broader set of teacher characteristics and from a more heterogeneous sample of teachers would also advance our understanding of these findings. For example, more detailed information on student and teacher racial and ethnic identity and experience could be gathered to better understand the influence of these factors on student outcomes (O'Connor, Lewis, & Mueller, 2007). Although the current findings suggested that neither having a graduate degree nor years of teaching experience were associated with use of referrals, additional research is needed to examine the influence of advanced training and professional development in classroom management on referral use. Future work may also consider a broader set of teacher emotion constructs, such as general efficacy and all three components of burnout, psychological

functioning, job satisfaction, motivation to improve practices, and organizational commitment (Leithwood & Beatty, 2008). In addition, it would be helpful to examine how efficacy and burnout relate to teachers' perceptions of the effectiveness of school-based services and discipline strategies, job satisfaction, and turnover (Domitrovich et al., 2008).

Although not examined within the current study, it is likely that the level of disorder at the school- or classroom-level has an influence on teacher efficacy and burnout. For example, the job demands and resources theoretical model of burnout suggest that when teachers and other employees work in an environment with a high level of demand, they are likely to express emotional exhaustion (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). A lack of sufficient resources and administrative support are linked with increased disengagement from work (Demerouti et al., 2001). Disorganized schools are likely low in resources and are highly demanding environments, which would contribute to reduced efficacy and increased burnout. Additional longitudinal research is needed to empirically examine whether the negative influences of a disorganized school environment on students are mediated through their affect on teacher factors, like burnout and reduced efficacy.

There are also important implications of this study for school psychologists involved in providing professional development and supporting school improvement initiatives. Our findings indicate that low efficacy and high burnout were associated with decreased referrals for student behavior and academic concerns. Although a decrease in inappropriate referrals (particularly discipline) is desired, it is problematic for students to be denied access to support services because of teacher factors. If decreased referrals reflect a withdrawal or disengagement on the part of teachers from their job, then support and professional development are needed to foster greater efficacy and reduce burnout. Screening procedures, such as those employed in the current study, could be used to identify teachers experiencing low efficacy and increased burnout. These data could then be used to tailor professional development and support services to meet the teachers' needs related to burnout and efficacy. For example, school psychologists can help to promote collaborative relationships

for teachers reporting high burnout. Similarly, training that aims to increase mastery experiences could be used to increase teacher efficacy (Bandura, 1977).

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