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Teacher Job Stress and Satisfaction in Urban Schools: Disentangling Individual, Classroom, and Organizational Level Influences

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Abstract

Schools remain among the most frequent providers of children's mental health services, particularly in low income urban settings. Several decades of research have focused on training teachers to implement evidence-based interventions for minimizing disruptive behavior. Studies consistently demonstrate robust improvements in student behavior and learning; however, the impact on teachers' work-related stress or satisfaction is not well understood. Six urban, high poverty elementary schools were randomly assigned to a school mental health services model (Links to Learning; L2L) for referred, disruptive students or to services and professional development as usual (SAU). Teachers (n = 71, K-4 general education teachers) in L2L schools participated in professional development and consultation in two universal and two targeted interventions to reduce disruptive behaviors and promote learning. Teachers (n = 65) in SAU schools participated in professional development as usual. Multiple regression models examined teacher reports of individual-level self-efficacy, classroom-level student functioning, and school-level organizational health as predictors of stress and satisfaction. Findings revealed no significant difference between conditions on teacher work-related stress or satisfaction. Organizational health was the strongest predictor of stress and satisfaction. Training on and implementation of evidence-based classroom interventions did not appear to significantly impact teachers' work-related stress or satisfaction. Instead, findings point to organizational climate and teacher connectedness as potential levers for change, supporting prior work on teacher stress and satisfaction in schools. The significance of targeting organizational factors may be particularly significant in urban school districts.

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Teachers long have reported higher levels of psychological distress and burnout when compared with other professions (Guglielmi & Tatrow, 1998; Kovess-Masféty, Rios-Seidel & Sevilla-Dedieu, 2007). A particularly high percentage of urban teachers have reported significant work-related stress, with impacts on both their personal relationships and physical health (Shernoff, Mehta, Atkins, Torf & Spencer, 2011). High stress levels amongst urban teachers are not surprising given the considerable challenges they face, including limited resources, overcrowding, chronic disruptive student behavior, and high-pressure accountability policies (Atkins, Graczyk, Frazier & Adil, 2003; Cappella, Frazier, Atkins, Schoenwald, & Glisson, 2008; Shernoff et al., 2011).

In addition to their responsibilities as educators, teachers and school personnel long have served among the most frequent providers of mental health services (Green et al., 2013; Rones & Hoagwood, 2000). A rich literature highlights extensive effort to train teachers on evidence-based interventions (EBIs) to prevent and manage disruptive behaviors and engage learners (Bierman et al. 2013; Leadbeater, Gladstone, & Sukhawathanakul, 2015). However, the impact of professional development and implementation of these EBIs on teacher work-related stress and satisfaction has been only minimally explored (e.g., Ross, Romer, & Horner, 2012). This paper examines predictors of teacher stress and satisfaction across classroom, teacher, and organizational levels, and the extent to which training in and use of four classroom EBIs may impact these predictors.

Teacher Stress and Satisfaction in Elementary Schools

Stress is defined as an unpleasant emotional experience linked with specific environmental triggers and associated with feelings of anger, tension, frustration, and anxiety (Kyriacou, 2001). Teacher stress specifically has been associated with such negative outcomes as depression, burnout, physical illness, poor quality of life, and increased staff turnover (Fantuzzo et al., 2012; Yang et al., 2009). In addition, stress can negatively impact teachers' effectiveness within the classroom while contributing to poor teacher-student rapport (Abel & Sewell, 1999; Kokkinos, 2007). The most prominent and empirically supported model of teacher stress is the Job-Demand-Control Support (JDCS) model, where work-related stress develops under perceptions of excessive job demands combined with low control and lack of social support (Payne & Fletcher, 1983; Siegrist, 2002).

Satisfaction has been conceptualized as a related but distinct construct from stress (Pelsma, Richard, Harrington, & Burry, 1989). Although satisfaction is less prominent in the literature, high job satisfaction among teachers has been associated with lower anxiety (Ho & Au, 2006), decreased desire to leave one's job (Johnson, Kraft, & Papay, 2012), and increased overall school effectiveness (Hung, 2012). Teachers in urban schools serving predominantly minority and low income students experience significantly greater stress and lower job satisfaction compared to their colleagues serving students in higher income, suburban, and rural settings (Markow, Moessner, & Horowitz, 2006).

Predictors of Teacher Stress and Satisfaction

A number of contributors to teacher stress have been identified, including personal coping strategies and available social supports (Kyriacou, 2001; Roeser et al., 2013), perceived self-efficacy (Klassen & Chiu, 2010), test-based accountability policies (von der Embse, Pendergast, Segool, Saeki, & Ryan, 2016), and the larger school climate (Grayson & Alvarez, 2008). The most common predictors of teacher satisfaction include student academic success in the classroom (Turner, 2007) and organizational influences such as positive principal leadership styles and a positive school climate (Duyar et al., 2013; Ghavifekr & Pillai, 2016). Not surprisingly, stress and satisfaction often display inverse relationships with similar predictors. For instance, negative teacher-student relationships create stress (Jennings & Greenberg, 2009), while positive teacher-student relationships are associated with greater job satisfaction (Veldman, van Tartwijk, Brekelmans, & Wubbels, 2013). Similarly, perceptions of poor communication and limited connections with colleagues adds stress, while positive communication and collegiality corresponds to higher satisfaction (Kyriacou, 2001).

Previous studies have found that organizational factors most consistently predict stress and satisfaction, and are more frequently reported by teachers as significant contributors to stress (Dorman, 2003; Shernoff et al., 2011). Multiple organizational factors come together to form a school's overall organizational health. A school is considered "healthy" when administrators are perceived as capable of properly educating students and obtaining necessary material supplies, the principal demonstrates both high expectations and concern for the welfare of school staff, students demonstrate a strong academic focus, and teachers feel socially satisfied and connected to both their colleagues and students (Hoy & Woolfolk, 1993). The predicted relationship between organizational health and teacher stress can be further understood by the JDCS model, by which work-related stress develops under perceptions of excessive job demands combined with low control and lack of social support. Accordingly, school-level health represents a competency and support system within which common predictors of stress and satisfaction, such as principal leadership, may impact job demands and teacher control over classroom-level decisions; while other predictors, such as positive teacher affiliation, may impact teachers' sense of social support.

While most identified predictors of stress and satisfaction can be classified as either individual-level (e.g. age, experience, self-efficacy) or organizational-level (e.g., school culture and climate, workload, principal leadership style, and role ambiguity) predictors, attention also has been directed to the impact of student problem behaviors, with perceptions of student motivation and behavior significantly predicting teachers' experience of stress (Collie et al., 2012). This association has been explained by Jennings and Greenberg (2009) using a "burnout cascade" model whereby work-related stress and burnout continue to build as teachers encounter increasingly difficult student behaviors they feel incapable of managing. Descriptive studies further highlight that student behavior problems are the greatest professional development need identified by teachers and the most robust predictor of teacher attrition among new teachers (Ingersoll & Smith, 2003; Shernoff et al., 2016). Altogether, the demonstrated significance of student behavior on teacher stress supports adjusting the two-level model of stress and satisfaction (i.e. individual and organizational)

into three levels representing individual, classroom, and school factors, whereby student problem behaviors and academic success represent classroom-level factors and teachers' interactions with colleagues and administrators represent school-level influences, as depicted in Figure 1. To our knowledge, no previous studies have compared predictors of teacher stress across classroom, teacher, and school-wide levels, particularly within the context of receiving training to implement EBIs.

Teacher Implementation of Evidence-Based Interventions

EBIs to reduce disruptive behavior and increase academic achievement can include trainings and implementation support at the school, class-wide, and individual student-level, and are often either academic or behavioral in nature. Overall, implementation of both universal (i.e. class-wide) and targeted (i.e. student-level) interventions have demonstrated positive impacts on decreasing disruptive behaviors and increasing student academic achievement (Flower, McKenna, Bunuan, Muething, & Vega, 2014; Vannest, Davis, Davis, Mason, & Burke, 2010). Ross, Romer, and Horner (2012) also found that teachers in schools implementing Positive Behavioral Interventions and Supports with high fidelity reported significantly lower levels of burnout than teachers in low fidelity schools, although it is unclear what factors may be driving this association. Implementing EBIs with high fidelity is expected to impact classroom-level predictors of stress and satisfaction by minimizing disruptions, maximizing engagement, and replacing time spent on discipline with time spent on instruction. Implementing EBIs is also expected to impact teacher-level predictors of teacher stress, for example by increasing teacher self-efficacy (Seibert, 2003), which has been associated with decreased levels of stress (Hughes, 2006). However, it is unclear whether EBIs designed to change teacher behaviors and classroom practice (academic instruction and behavior management) toward improving student outcomes (engagement and performance) are sufficient to impact teacher stress and satisfaction, or whether school-wide organizational changes are necessary to enact an effect. This question may be particularly important in urban schools, where teachers are operating in high-stakes and high-stress environments with limited resources and time.

What We Know and Don't Know

To summarize, we know that teachers in urban schools report particularly high levels of stress and low levels of satisfaction (e.g., Markow et al., 2006), as well as high levels of disruptive behavior and more challenges with classroom management (Balfanz, Herzog, & Mac Iver, 2007). We also know that disruptive behavior interferes with overall classroom functioning and individual student academic achievement (Atkins, Hoagwood, Kutash, & Seidman, 2010), and effective classroom management can reduce disruptions and improve learning (Reid, Gonzalez, Nordness, Trout, & Epstein, 2004). There is growing evidence that implementing EBIs to promote positive student behaviors may reduce emotional exhaustion and similar constructs among educators (e.g., Ross, Romer, & Horner, 2012). However, much less is known about the driving factors behind this association, and whether the same effect occurs in urban schools, where higher levels of teacher stress and numerous organizational barriers are often reported (Shernoff et al., 2011). Organizational barriers (e.g., school leadership and teacher collegiality) are particularly significant due to their

frequent association with teacher stress (Dorman, 2003). The current study advances understanding of stress and satisfaction among teachers in urban schools by examining predictors at three levels (individual, classroom, school-wide) and how training in and use of EBIs may impact them.

Current Study

The present study utilizes data from a large randomized controlled trial, where six elementary schools in urban high poverty communities were randomly assigned to a mental health service model for referred disruptive students (Links to Learning; L2L) or to mental health services and professional development as usual (SAU) (Atkins et al., 2015). L2L schools partnered with community mental health agencies, with the goal of improving learning. Mental health providers, parent advocates, and Key Opinion Leader (KOL) teachers (identified via sociometric interviews with instructional staff) together provided home and classroom supports for referred children with Disruptive Behavior Disorders. As part of this more comprehensive service model, L2L teachers ($n = 71$, K-4 general education teachers) received training and ongoing consultation to implement two universal (Good Behavior Game and Peer-Assisted Learning) and two targeted (Daily Report Card and Good News Notes) interventions to reduce disruptive behaviors and promote learning (Barrish et al., 1969; Fuchs, Fuchs, & Burish, 2000; Kelley & McCain, 1995; Lahey et al., 1977). SAU teachers ($n = 65$) received community mental health services as usual for their referred students, and professional development as usual provided by the school district. Teachers in both conditions reported on organizational health, student outcomes, self-efficacy, and work-related stress and satisfaction at the beginning and end of each academic year of their study participation.

We tested multiple pathways across all three hypothesized levels (i.e. individual, classroom, and school-wide), as depicted in Figure 1. Hypothesis 1 states that L2L teachers will report lower end-of-year levels of work-related stress and higher end-of-year levels of satisfaction compared to SAU teachers. Hypothesis 2 states that teachers who report higher levels of individual self-efficacy, classroom-level student functioning, and school-level organizational health will report lower levels of stress and higher levels of satisfaction, compared to teachers who report lower levels of self-efficacy, student functioning, and organizational health. Hypothesis 3 states that post-training, L2L teachers will report higher levels of self-efficacy, student functioning, and organizational health, compared to SAU teachers. We examined the association of both intervention assignment (L2L or SAU) and adherence to interventions with teacher stress and satisfaction in order to examine the extent to which effects varied depending on teachers' self-reported frequency and accuracy of use.

Method

University and school district institutional review board approvals were obtained prior to initiating study procedures.

Research Design

This study utilizes data from a randomized controlled trial examining a school mental health services model (Links to Learning; L2L) for referred, disruptive students, compared to mental health services and professional development as usual (SAU), using a 2 (L2L vs. SAU) by 6 (pre- and post-tests for 3 years) longitudinal design with random assignment of schools to conditions (Atkins et al., 2015). Teachers in both conditions referred students with disruptive behavior problems to their school's partnering community mental health agency. The L2L service model focused on empirical predictors of learning in high-poverty urban communities and involved a team of teacher Key Opinion Leaders (KOLs), mental health providers (MHPs) and parent advocates. KOLs and MHPs facilitated professional development meetings for classroom teachers to disseminate interventions. Families received group-based and home-based family education and support provided by MHPs and parent advocates. Students in SAU schools received routine assessment and intervention services from a mental health provider; and SAU teachers received professional development as usual, provided by the school district, with no additional trainings provided by the research team. Overall effects of the L2L model on student outcomes indicated positive effects of L2L on classroom observations of academic engagement, teacher report of academic competence and social skills, and parent report of social skills (Atkins et al., 2015). Nonsignificant between-groups effects were found on teacher and parent report of problem behaviors. Hypothesized effects of randomization to condition on predictors of stress and satisfaction at the individual, classroom, and school-wide levels examined in this paper reflect the overall impact of the comprehensive mental health service model, as it is impossible to parse out the effects of any particular component, such as teacher training.

Schools

Six schools were randomly selected from among 325 schools in a large, Midwestern urban district based on under-performance of students on math and reading (as determined by school report cards) and proximity to participating community mental health agencies. Students were characterized as 98% low income and 97% African American. Average school-wide reading scores on statewide testing was below the 35th percentile for each school. Schools were randomized to L2L ($n = 3$) or SAU ($n = 3$) conditions. Kindergarten through 4th grade general education teachers ($n = 136$) across all six schools participated in the larger study, and were predominantly female (89%) and African American (58%), with an average of 12 years of teaching experience ($SD = 12.04$). Additional details about the larger study, including school recruitment, randomization, and teacher recruitment, are available in (Atkins et al., 2015).

Teachers

Of the 136 participating teachers, 54 teachers with complete data on the variables of interest in Year 2 (L2L; $n = 32$, SAU; $n = 22$) were included in the current sample. Demographic information for the subsample of 54 teachers is presented in Table 1. The listwise deletion method was used to identify the 54 teachers with complete data for Year 2, after no statistically reliable deviation from randomness was found using Little's MCAR test (Little, 1988): $\chi^2(14, N = 121) = 15.32$, $p = .357$. There were no significant differences between the

complete sample for the larger study and the identified sample of 54 teachers on identification as African American (χ^2 = 0.063, p = .802), age (t (188) = 0.979, p = .329), gender (χ^2 = 1.248, p = .264), or years of teaching experience (t (188) = 0.266, p = .791).

Teacher Professional Development

Teachers in L2L schools were invited to participate in school-wide professional development on two universal (Good Behavior Game and Peer-Assisted Learning) and two targeted (Daily Report Card and Good News Notes) interventions (Barrish et al., 1969; Fuchs et al., 2000; Kelley & McCain, 1995; Lahey et al., 1977). KOLs (n = 10) identified at each school via sociometric interviews with all instructional staff (Neal, Neal, Atkins, Henry, & Frazier, 2011) were designated as influential and thus well-positioned to disseminate these interventions. KOLs completed a web-based course to learn the universal and targeted interventions at the beginning of the study, and then hosted weekly one hour meetings before and after school hours for three months, with the assistance of trained MHPs to introduce and endorse the four interventions with other teachers in their school. Teachers who enrolled in L2L after the meetings occurred were introduced to the EBIs through individual meetings with KOLs. Meetings were followed by classroom demonstrations by KOLs, MHPs, and university consultants. All teachers in L2L schools were invited to the school-wide professional development meetings facilitated by KOLs; however, only teachers with behaviorally referred students received in-classroom support for implementing universal interventions (Good Behavior Game and Peer Assisted Learning) with their full classrooms and targeted interventions (Daily Report Cards and Good News Notes) for referred students. Across the duration of the study, L2L teachers on average attended 25.95 teacher consultation sessions related to a specific child (SD = 21.34, range 1 to 79).

Procedures

Teachers in Kindergarten to 4th grade classrooms across all six schools were invited to participate in the larger study, with consent rates of 89% for L2L and 93% for SAU. Consented teachers in both conditions completed questionnaires at the beginning and end of each school year, across three years. For the current study, primary analyses were run using Year 2 data, which reflect the most complete post-training reports on variables of interest. Bivariate correlations were examined again with the subset of teachers for whom Year 3 data was available and complete (N = 35). Teachers had the option to complete surveys electronically or via hard copy, and were compensated with classroom supplies.

Measures

Teacher stress and satisfaction—Teachers completed the Quality of Teacher Work Life (QTWL) survey (Pelsma et al., 1989), a 36-item measure designed to assess self-reported work-related stress and satisfaction. Teachers rated (1 = *low* to 5 = *high*) the extent to which each item (e.g., salaries, class sizes, competence of administration, student discipline, time required to adapt instruction) causes stress (i.e., “How much stress?”) or satisfaction (i.e., “How much satisfaction?”). Stress and satisfaction subscales are computed as the mean across all items and analyzed separately. Teachers reported stress and satisfaction at the beginning and end of each school year. Internal reliability for both stress

and satisfaction was high (α ranged from .93 to .96). There were no baseline differences between L2L and SAU teachers in mean stress, $t(26) = .651$, $p > .05$, or mean satisfaction, $t(55) = -1.01$, $p > .05$. Intra-class correlations were low for stress by school ($ICC = .062$) and satisfaction by school ($ICC = .171$). We utilized scores from end of Year 2 (Stress: $M = 2.90$, $SD = .813$; Satisfaction: $M = 2.99$, $SD = .641$).

Organizational health—Teachers completed the Organization Health Inventory-Elementary (OHI-E; Hoy & Woolfolk, 1993), a 37-item survey assessing teachers' perceptions of organizational school health (1 = *rarely* to 4 = *very frequent*). The OHI-E yields an averaged total score and five subscale scores: institutional integrity (degree to which teachers perceive the school and its administration to properly educate students without undue influence from outside sources), collegial leadership (principal's high expectations and concern for the welfare of school staff), resource influence (principal's ability to obtain necessary material supplies), teacher affiliation (social satisfaction, including connection between teachers as well as between teachers and students), and academic emphasis (school's expectations for student achievement as well as students' academic-focused behaviors and attitudes). Teachers reported on organizational health at the beginning and end of each school year. Internal reliability was high (α = .95). Baseline organizational health total scores did not differ between L2L and SAU teachers, $t(12) = -.609$, $p > .05$). Total scores from beginning of Year 2 ($M = 2.72$, $SD = .52$) were used in final analyses.

Student functioning—Teachers completed the Social Skills Rating System (SSRS) (Gresham & Elliott, 1990) to assess students' social skills, problem behaviors, and academic competence on a 3-point scale (0 = *never*, 1 = *sometimes*, 2 = *very often*). Teachers reported on student outcomes at the beginning and end of each school year for each referred student. A classroom average was calculated for each of the three subscales for all referred students. Internal reliability was high for each subscale: social skills (α = .85), problem behaviors (α = .86), and academic competence (α = .93). There were no baseline differences between L2L and SAU groups on classroom scores for social skills ($t(108) = .074$, $p > .05$), problem behaviors ($t(110) = 1.098$, $p > .05$), or academic competence ($t(109) = 1.009$, $p > .05$). The average classroom total score for all referred students for each subscale (social skills, $M = 25.78$, $SD = 7.14$; problem behaviors, $M = 19.07$, $SD = 5.15$, academic competence, $M = 21.52$, $SD = 5.94$) at the beginning of Year 2 was examined as a potential predictor of end of year teacher stress and satisfaction. On average, teachers rated that students demonstrated the measured positive social skills between never and sometimes, demonstrated the measured problem behaviors between sometimes and very often, and performed in the bottom 20–40% of their class academically.

Teacher sense of efficacy—Teachers completed the 12-item Teacher Sense of Efficacy Scale (Tschannen-Moran & Hoy, 2001), at the beginning and end of each school year, to assess perceptions of their ability to affect student engagement and learning (1 = *no control* to 9 = *a great deal*). Internal reliability was high (α = .92), with no baseline differences between L2L and SAU, $t(26) = .324$, $p > .05$. We utilized scores from beginning of Year 2 ($M = 7.12$, $SD = 1.09$).

Intervention adherence—Teachers reported implementation of the four interventions via monthly adherence checklists designed for the larger study. Each intervention was described by its core components (derived from prior literature). For example, the Good Behavior Game checklist contained 8 items (e.g., "Rules were discussed," "Teams were announced," and "Points were lost for breaking rules."). Teachers reported the frequency with which they adhered to each individual component during the last month (1 = *never* to 5 = *always*). An average score was calculated for each intervention, as well as a total mean score across all four interventions. MHPs assisted with implementing targeted interventions (i.e., Good News Notes and Daily Report Cards) in some classrooms; thus, only scores for universal interventions (i.e., Peer-Assisted Learning and Good Behavior Game) were included in the overall adherence score. Average scores were calculated across Year 2 of the study (M = 4.01, SD = .60).

Demographics—Teacher gender, race, ethnicity, age, years of teaching experience, years teaching at current school, and highest level of education were examined as potential covariates.

Analytic Plan

We first conducted bivariate correlations to identify which predictors to include in the regression models. Two multiple regression analyses followed, to examine the strength of all significant predictors of teacher stress (Model 1) and satisfaction (Model 2). First, we tested whether L2L teachers reported lower stress and higher satisfaction than SAU teachers at the end of Year 2, and whether adherence to the L2L classroom interventions was associated with teachers' stress and satisfaction levels (Hypothesis 1). We then tested whether teachers' self-efficacy, student functioning, and organizational health at the beginning of Year 2 was associated with their stress and satisfaction levels at the end of the year (Hypothesis 2). Finally, we used an ANOVA to test for mean differences between L2L and SAU teachers in any significant predictors of either teacher stress or satisfaction, with potential predictors including self-efficacy, student functioning on the SSRS, and organizational health (Hypothesis 3). Beginning of the year self-efficacy, student SSRS scores, and organizational health scores were used to establish temporal precedence, as they were examined as potential predictors of teacher stress and satisfaction for which end of the year scores were used across all analyses. Bivariate correlations were then conducted again using Year 3 data from a subset of Year 2 teachers with available data. Correlations were run between stress and satisfaction with each of the primary predictors.

Results

Predictors of Teacher Work-Related Stress

Bivariate correlations revealed that teacher work-related stress was negatively correlated with organizational health total score (r = −.506, p < .01), but not correlated with self-efficacy (r = .005, p > .05), or the average student score on the SSRS in social skills (r = .069, p > .05), problem behaviors (r = .105, p > .05), or academic competence (r = .100, p > .05). Stress was correlated with race (r = −.300, p < .05), and educational attainment (r = −.371, p < .01), such that teachers who identified as black and teachers with masters or

doctoral degrees reported lower levels of work-related stress compared to their colleagues. Hence, race and highest degree obtained were included as predictors of stress at step one of the regression model, assignment to condition (dummy-coded; 1 = L2L, 0 = SAU) was included at step two, and organizational health was included at step 3. Intervention adherence was not correlated with teacher stress (r=.467, $p > .05$) and therefore not included in the model.

Table 2 presents results from the hierarchical regression of teacher stress, using the stress subscale of the QTWLS for Year 2, on condition (L2L or SAU) and teacher reported organizational health using the total score on the OHI-E. As shown in step 1 of the model, which includes only teacher demographic characteristics, teachers with masters or doctoral degrees reported less stress than those with bachelor's degrees ($\beta = -.353$, $p < .05$), and teachers who identified as black reported less stress than those who did not ($\beta = -.271$, $p < .05$). Altogether the demographics included in step 1 explained a significant proportion of variance in teacher stress, $F(2, 45) = 6.296$, $p < .01$, $R^2 = .219$. In step 2, we added the dummy-coded condition (L2L = 1, SAU = 0). L2L assignment was not significantly associated with teacher stress ($\beta = -.024$, $p > .05$). While the overall model at step 2 explained a significant proportion of variance in teacher stress, $F(3, 44) = 4.117$, $p < .05$, $R^2 = .219$, the addition of the condition variable did not account for a significant increase in variance, $\Delta F(1, 44) = .030$, $p > .05$, $\Delta R^2 = .001$. In step 3, we added the total score on the OHI-E. Consistent with our hypothesis, organizational health was strongly and negatively associated with teacher stress ($\beta = -.525$, $p < .001$), and the model explained 21% of the variance in teacher stress, $F(4, 43) = 7.973$, $p < .001$, $R^2 = .426$, above and beyond the teacher demographic characteristics and condition assignment included in steps 1 and 2.

Following the significant association between total organizational health and teacher stress, we ran separate regression analyses for each of the OHI subscales predicting teacher stress. All five OHI subscales significantly predicted teacher stress, including institutional integrity ($\beta = -.453$, $p = .001$), collegial leadership ($\beta = -.372$, $p < .05$), resource influence ($\beta = -.415$, $p < .05$), teacher affiliation ($\beta = -.392$, $p < .05$), and academic emphasis ($\beta = -.380$, $p < .05$).

Bivariate correlations for Year 3 data also revealed that organizational health was the only predictor significantly and negatively correlated with teacher stress ($r = -.559$, $p < .01$). Teacher adherence ($r = .332$, $p > .05$), self-efficacy ($r = -.035$, $p > .05$), as well as average student score on the SSRS in social skills ($r = .402$, $p > .05$), problem behaviors ($r = .139$, $p > .05$), and academic competence ($r = .233$, $p > .05$) were not significantly associated with teacher stress in Year 3.

Predictors of Teacher Work-Related Satisfaction

Bivariate correlations revealed that teacher work-related satisfaction was positively correlated with total organizational health ($r = .637$, $p < .01$) and self-efficacy ($r = .273$, $p < .05$), but was not correlated with student SSRS scores in social skills ($r = .266$, $p > .05$), problem behaviors ($r = -.051$, $p > .05$), or academic competence ($r = .286$, $p > .05$). Satisfaction was also correlated with race ($r = .378$, $p < .01$), such that teachers who identified as black reported significantly higher levels of satisfaction compared to their

colleagues. Hence, race was included as a predictor of satisfaction at step one of the regression model, assignment to condition (dummy-coded; 1 = receiving L2L, 0 = SAU) was included at step two, and organizational health and teacher self-efficacy were included at step 3. Intervention adherence was not correlated with teacher satisfaction (r=.287, $p > .05$) and therefore not included in the model.

Table 3 presents results from the hierarchical regression of teacher satisfaction, using the satisfaction subscale of the QTWLS for year 2, on condition assignment, teacher reported self-efficacy, and total organizational health. Teacher demographic characteristics were entered on step 1, with teachers who identified as black reporting more satisfaction than those who did not ($\beta = .471$, $p < .01$), explaining a significant proportion of variance in teacher stress, $F(1, 46) = 13.130$, $p = .001$, $R^2 = .222$. In step 2 of the model, we added the dummy-coded condition (L2L = 1, SAU = 0). Receiving the L2L condition was not significantly associated with teacher satisfaction ($\beta = .039$, $p > .05$). While the overall model at step 2 explained a significant proportion of variance in teacher satisfaction, $F(2, 45) = 6.475$, $p < .01$, $R^2 = .223$, the addition of the dummy-coded condition variable did not account for a significant increase in variance, $\Delta F(1, 45) = .082$, $p > .05$, $\Delta R^2 = .001$. In step 3 of the model, we added the total score on the OHI-E and teacher self-efficacy scale. Consistent with our hypothesis, organizational health was significantly, strongly, and positively associated with teacher satisfaction ($\beta = .569$, $p < .001$). However, teacher self-efficacy was not associated with teacher satisfaction ($\beta = -.005$, $p > .05$). The addition of organizational health and self-efficacy in step 3 explained 24% of the variance in teacher satisfaction, $F(4, 43) = 9.300$, $p < .001$, $R^2 = .464$, above and beyond the teacher demographic characteristics and randomization condition included in steps 1 and 2.

Following the significant association between total organizational health and teacher satisfaction, we ran separate regression analyses for each of the OHI subscales predicting teacher satisfaction. All five OHI subscales significantly predicted teacher satisfaction, including institutional integrity ($\beta = .363$, $p < .05$), collegial leadership ($\beta = .510$, $p < .001$), resource influence ($\beta = .531$, $p < .001$), teacher affiliation ($\beta = .532$, $p < .001$), and academic emphasis ($\beta = .438$, $p = .001$).

Bivariate correlations for Year 3 data again revealed that organizational health was the only predictor significantly correlated with teacher satisfaction (r=.708, $p < .01$). Teacher adherence ($r = .097$, $p > .05$), self-efficacy ($r = .213$, $p > .05$), as well as the average student score on the SSRS in social skills ($r = -.130$, $p > .05$), problem behaviors ($r = -.300$, $p > .05$), and academic competence ($r = -.056$, $p > .05$) were not significantly associated with teacher satisfaction in Year 3.

Differences in Predictors of Stress and Satisfaction by Condition

An ANOVA was conducted to test for mean differences in any significant predictors of stress and satisfaction between groups. Among the potential predictors, including organizational health, teacher self-efficacy and student functioning, only organizational health was found to significantly predict both stress and satisfaction. ANOVA revealed no differences between L2L and SAU teachers on beginning-of-year 2 total organizational health, $F(1, 51) = .501$, $p > .05$.

We also conducted an ANOVA to test for possible differences in the five subscales of the organizational health inventory between the SAU and L2L groups. There was a significant difference between groups on the academic emphasis subscale, $F(1, 52) = 4.88$, $p < .05$. Specifically, compared to SAU teachers, L2L teachers reported higher academic emphasis, including greater reports of students acting cooperatively, seeking extra work, and supporting peers who receive good grades. There were no other significant differences between conditions on collegial leadership, institutional integrity, resource influence, or teacher affiliation.

Discussion

This study examined the extent to which teacher training and support on universal and targeted EBIs for reducing disruptive behavior in the classroom, within the context of a larger mental health service model, influences teacher stress and satisfaction in an urban school district, with consideration for individual, classroom, and organizational level influences. There was no significant association between service model (L2L or SAU) or intervention adherence and stress or satisfaction. Teachers' ratings of self-efficacy were significantly correlated with satisfaction in Year 2 but not Year 3; and organizational health was the strongest predictor of both stress and satisfaction across both years. There were no significant associations between teachers' ratings of student functioning and their reported stress or satisfaction levels. There was no significant difference in reported organizational health between groups. Among organizational health subdomains, only academic emphasis distinguished between the L2L and SAU conditions.

Stress, Satisfaction, and Organizational Health

Interventions designed to reduce teacher stress have traditionally fallen into three groups: organizational interventions to improve an organization's culture; organization-individual interface interventions focusing on building workplace relationships and support; and individual interventions that help teachers manage occupational stress (Greenberg, Brown, & Abenavoli, 2016). Interventions focused on training teachers in mindfulness and stress management have been shown to reduce teacher stress and improve job satisfaction (Beshai, McAlpine, Weare, & Kuyken, 2016); however, these effects have not previously been found to last over time (Anderson, Levinson, Barker, & Kiewra, 1999). The current findings lend further support to efforts addressing organizational contributors to stress, and suggest that efforts focused on reducing student disruptions and improving engagement, while perhaps necessary to improve classroom functioning, may not be sufficient to improve school-wide social context factors, particularly in urban, high poverty schools.

Impacts of Implementing Evidence-Based Interventions

The lack of differences between conditions in teacher stress, satisfaction, and organizational health levels may best be understood by closer examination of the primary purpose and structure of the L2L service model. First, due to the complexity of the model and incorporation of both home and school components supported by teachers and mental health providers, it can be difficult to parse apart the specific effects of training and support of the EBIs. Second, L2L was a mental health service model, not a school reform model, and

therefore had a primary goal of improving students' mental health and academic outcomes rather than targeting school-wide outcomes. While the use of a school-wide professional development model lead by KOL teachers was designed to create norms around use and sustainability of the interventions, the primary goal was centered on implementing the interventions rather than changing how schools functioned as organizations. This focus on improving student outcomes is demonstrated by the significant difference in academic emphasis between L2L and SAU classrooms, with students in L2L classrooms demonstrating more academically driven and supportive attitudes and behaviors. This also supports why higher-order organizational factors related to teacher collegiality, school resources, and administrative support did not differ between groups.

These findings can also help inform current models of work-related stress and how such models may or may not apply to teachers working in urban, high poverty schools. For example, our findings suggest that impacting teachers' sense of control within the classroom by increasing self-efficacy may not be enough to significantly improve their stress levels. While teachers may feel capable of using the interventions within the classroom, any predicted reduction in stress may only occur if they experience increased control and autonomy to make decisions regarding which interventions and programs to implement in their classroom.

It is also possible that the impact on teacher stress and satisfaction may vary based on how the interventions align with the primary goals of the classroom and school leadership. Both educators and community mental health providers have previously reported positive benefits of implementing EBIs and evidence-based practices (EBP), including a reduction in emotional exhaustion, a construct highly correlated with job stress. For example, Aarons et al. (2009) found that implementing a home-based EBP called SafeCare decreased emotional exhaustion among child welfare case managers. Similarly, Ouellette et al. (2015) found associations over time between adherence to classroom-based interventions for children with autism spectrum disorders and decreased emotional exhaustion among autism support teachers. Further investigation may help to advance understanding of how individual, work unit, and organizational characteristics may moderate associations between intervention adherence and workplace stress and satisfaction.

Targeting Teacher Stress and Satisfaction in Urban Schools

As discussed earlier, teachers in urban schools with predominantly minority and low income students experience significantly greater stress and lower job satisfaction compared to their colleagues serving students in suburban and rural settings (Markow et al., 2006). Shernoff and colleagues (2011) took a close look via semi-structured interviews at the predictors and impact of stress for early career teachers (i.e., fewer than five years teaching) in urban schools, using a subsample of teachers from the current study. The majority of teachers report that occupational stress negatively impacts their personal relationships and physical health, with teachers indicating human and material resources as the most critical mechanisms by which to reduce work-related stress. It is possible that this is not the case in more affluent school districts with adequate resources to meet their students' needs. In related work, Mehta and colleagues (2013) examined the association of organizational health

with teacher stress and job satisfaction among a sample of 74 teachers working in high-poverty, urban schools. Their results point to empowering principals to develop a positive learning environment, fostering positive relations with the community, and including teachers in decisions related to school policy in order to make the most effective impact on teacher stress and satisfaction within urban schools (Mehta, Atkins, & Frazier, 2013). A positive learning environment consists of both positive student attitudes toward learning (i.e., academic emphasis) and teacher enthusiasm for their job. Results from the current study reveal that improving academic emphasis may not be sufficient to improve teachers' perceptions of overall school health or their own stress and satisfaction. Increased opportunities for professional development and support from principals focused explicitly around teacher connections and collegiality may help to enhance teacher enthusiasm and health outcomes.

The Importance of Healthy Teachers

Although traditional school mental health service models have not conceptualized teacher stress or satisfaction as levers for change or pathways by which to improve children's school experience (Klusmann et al. 2016), evidence supports the importance of targeting these constructs directly for the benefit of students as well as teachers. For example, both high levels of stress and low job satisfaction have been associated with lower levels of effectiveness in the classroom, interfering with instruction and student learning (Abel & Sewell, 1999; Kokkinos, 2007). Elevated stress can also interfere with teachers' effective learning and implementation of EBIs, as well as their perceptions of an intervention's feasibility. For example, McGoey and colleagues (2014) found that teachers who reported higher levels of stress also reported a greater number of barriers to implementing a proposed behavioral intervention compared to teachers reporting lower levels of stress. Teachers reporting high levels of stress also have demonstrated lower in-classroom adherence to evidence-based recommendations following a didactic training (Wehby et al., 2012). Taken together, it seems high stress may reduce teachers' effectiveness, and interfere with acquisition of new skills to improve their effectiveness, though closer examination is warranted.

Finally, the significant association between job stress and satisfaction on teacher physical and emotional health alone support the importance of building and examining interventions specifically designed to improve these outcomes. It is possible that the most effective route for promoting healthy outcomes for teachers is to promote a healthy work environment, including a positive organizational climate, high levels of collegiality amongst teachers, adequate resources and support, and manageable workloads. Altogether, these results support the need for an interdisciplinary approach to school-based implementation efforts, incorporating organizational, teacher-specific, and student-specific elements, as depicted in Figure 1. This aligns with previous conceptual models for successful implementation and sustainment of EBIs targeting student outcomes, including the need for alignment across multiple levels of a system (Domitrovich et al. 2008), as well as support from both supervisors and peers in transferring new knowledge and skills acquired during trainings (Blume, Ford, Baldwin, & Huang, 2010). However, while common models for successful implementation of school-based mental health programs, such as Han and Weiss' (2005)

Sustainability Process Model, indicate that factors such as stress and burnout should be addressed before consultation begins, continued support from supervisors and peers may also be necessary throughout the implementation process to ensure both successful implementation with fidelity and maximum improvements in teacher health outcomes such as stress.

Limitations

Several limitations are worth noting and suggest that the findings should be interpreted with caution. The measurement design (measures at the beginning and end of the school year) make it difficult to make a robust causal inference. Teachers also self-reported organizational health, self-efficacy, stress, and satisfaction, though perhaps this serves as both a limitation and a strength. While teacher stress levels may have impacted their perception and reporting of individual, student, and organizational influences, self-report measures may be more likely to accurately capture an internal experiential construct such as job stress. Missing data also may have impacted the accuracy and applicability of our data. The lack of adherence data for teachers in the SAU group prohibited examination of differences in EBI adherence across the two groups, which may have contributed to the lack of differences in stress and satisfaction between groups. Participation rates for all teacher measures was somewhat low across schools, with complete data for 54 out of 136 participating teachers on the included variables. Future studies should examine similar constructs with larger samples to further examine the generalizability of these results.

The nesting of teachers within schools also may have resulted in shared variance, impacting the accuracy of our error estimates. The intra-class correlations for stress across schools was low, with correlations slightly higher for satisfaction. We also conducted the analyses using hierarchical linear modeling (HLM), which revealed all of the same primary results, with organizational health emerging as the only significant predictor of both stress and satisfaction across Year 2 and 3. Due to sample size considerations, particularly regarding the number of schools in the sample, we decided to utilize an OLS approach. Future studies with nesting across a greater number of schools would benefit from examining these constructs using an HLM approach.

Of note, the QTWLS also focuses strongly on organizational predictors of stress, which may have contributed to the strong associations between the QWTLS and OHI. Reports of stress were surprisingly low overall, while greater levels of stress were reported among early career teachers in the larger study during semi-structured interviews (Shernoff et al., 2011), indicating potential underreporting of stress on the QTWLS. It may therefore be beneficial in future studies to assess possible physiological indicators of stress, such as eating and sleeping habits, and to include a non-work specific measure of stress or emotional burnout, such as the Maslach Burnout Inventory (Maslach & Jackson, 1981), which has demonstrated stronger associations with EBI and EBP implementation in prior studies. In addition, Pelsma et al. (1989) identified 10 dimensions of stress and satisfaction, including administration, time, students, interruptions, work environment, external and internal support, job market, extrinsic rewards, and evaluation. Our sample was not large enough to confirm these factors

through factor analysis; however, future work may benefit from analyzing outcomes of specific subscales of the QTWLS.

Conclusions

To summarize, we found no significant effects of universal and targeted EBI training on teacher's work-related stress and satisfaction. Instead, teachers' reports of overall organizational health most strongly predicted their reports of stress and satisfaction. These findings point to a need to more directly target organizational social context factors as a pathway by which to improve teacher stress and satisfaction, particularly in urban schools serving minority, low income, and otherwise at-risk students. Targeting these outcomes is particularly important for improving teachers' physical and emotional well-being, effectiveness in the classroom, and ability to implement classroom recommendations successfully. Altogether, these results highlight the importance of implementation models offering support across multiple contextual levels, targeting student-level, teacher-level, and school-wide factors.

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Appendix A

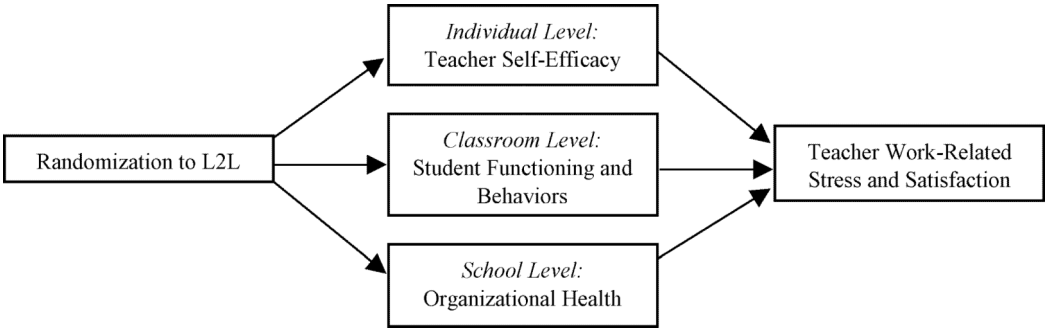

Figure 1.
Proposed model predicting work-related stress and satisfaction across three contextual levels

Appendix B

Table B1

Demographic information for Year 2 subsample.

Characteristic	Nominal variables	Continuous variables	
	%	Mean	SD
Gender			
Male	9.3		
Female	83.3		
Race/Ethnicity			
Black	55.6		
White	27.8		
Hispanic	3.7		
Other	3.7		
Not reported	9.3		
Highest degree			
B.A./B.S.	38.9		
M.A./M.S.	51.9		
Ph.D/Ed.D	1.9		
Age		40.4	13.3
Total number of years teaching		12.5	10.8
Number of years at current school		7.1	8.4

Table B2

Multiple regression of Year 2 end-of-the-year teacher stress on beginning of the year organizational health ratings and L2L condition.

Variable	***F*= 6.296, R^2 = .219, *p*= .004**					***F*= 4.117, R^2 = .219, *p* = .012, Δ*F* = 6.296, ΔR^2 = .219, *p* = .864**					***F*= 7.973, R^2 = .426, *p* < . ΔR^2 = .207, *p* < .001**		
	Step 1					**Step 2**					**Step 3**		
	b	**S.E.**	**Beta**	***t***	**CI for *b***	***b***	**S.E.**	**Beta**	***t***	**CI for *b***	***b***	**S.E.**	**Beta**
Constant	3.552	.211		16.84	3.127 to 3.977	3.570	.238		15.021	3.091 to 4.049	5.774	.597	
Race (Black)	−.476	.232 *	−.271	−2.05	−.944 to − . 008	−.466	.242	−.266	−1.920	−.954 to .023	.011	.243	.006
Highest degree	−.615	.231 *	−.353	−2.64	−1.080 to − . 150	−.618	.234	−.355	−2.640	−1.090 to − . 146	−.690	.204	−.396
L2L condition						−.041	.239	−.024	−.172	−.523 to .440	−.109	.208	−.063
OHI–total											−.902	.229 ***	−.525

*** *p*<.001,
** *p* <.01,
* *p* <.05

Table B3

Multiple regression of Year 2 end-of-the-year teacher satisfaction on beginning of the year organizational health ratings, self-efficacy, and L2L condition.

Variable	***F*= 13.130, R^2 = .222, *p*= .001**					***F*= 6.475, R^2 = .223, *p* = .003, Δ*F*= .082, Δ R^2 = .001, *p* = .776**					***F*= 9.300, R^2 = .464, *p* < 9.639, ΔR^2 = .240, *p* < .**		
	Step 1					**Step 2**					**Step 3**		
	b	**S.E.**	**Beta**	***t***	**CI for *b***	***b***	**S.E.**	**Beta**	***t***	**CI for *b***	***b***	**S.E.**	**Bet**
Constant	2.538	.130		19.469	2.276 to 2.801	2.518	.150		17.268	2.215 to 2.820	.888	.572	
Race (Black)	.608	.168 **	.471	3.624	.270 to .945	.596	.174 **	.462	3.424	.246 to .947	.221	.175	.17
L2L condition						.049	.172	.039	.286	−.297 to .395	.078	.148	.06
Self- efficacy											−.003	.071	−.0
OHI– total											.693	.159 ***	.56

*** *p* <.001,
** *p* <.01,
* *p* <.05

Highlights

- Training in classroom interventions did not impact teacher stress or satisfaction.
- Self-efficacy and student functioning did not predict stress or satisfaction.
- Organization health best predicted teacher stress and satisfaction.
- A multi-level approach may be most appropriate for implementation in schools, with specific strategies, such as increasing principal support and teacher affiliation, recommended for decreasing teacher stress and increasing satisfaction.