Abstract

The current study examined teacher stress in urban elementary schools, including the relationship between teacher-reported stress, instrumental and emotional supports, observed classroom instructional and behavior management practices, and teacher ratings of class-wide student academic performance and behavioral functioning. This study evaluated baseline data from 103 K-5th grade teachers who participated in an RCT study investigating the effectiveness of the Classroom Strategies Coaching (CSC) Model in 14 high-poverty urban elementary schools. The data were analyzed through descriptive statistics, correlational analysis, and multiple regression analysis. Results revealed that teachers reported experiencing moderate stress levels, with the main sources of stress being student performance on standardized tests, teaching, student learning process, student engagement, and behavior problems. Teachers’ ratings of stress were significantly related to teacher’s ratings of emotional support ($r = -.27, p < 0.01$), instrumental support ($r = -.29, p < 0.01$), class-wide student academic performance ($r = -.21, p < 0.05$), and behavioral functioning ($r = -.30, p < 0.01$). Teacher stress was predictive of emotional and instrumental supports, classroom practices, and student academic and behavioral functioning. However, none of the variables independently predicted teacher stress. Study limitations and implications for research and practice are discussed.
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INTRODUCTION

Teaching is considered one of the most stressful occupations in the United States (Johnson et al., 2005). Work-related stress is a widespread issue in the teaching profession, with the rate of reported stress projected at an all-time high (American Federation of Teachers, 2015; Turner, 2016). For instance, the MetLife Survey of the American Teacher (2013) found that out of 1,000 U.S. K–12 public school teachers, 51% reported feeling under great stress for several days of the week. This statistic dramatically increases from 35% reported in the first MetLife survey in 1984 (The Metropolitan Life Survey of the American Teacher, 1984). In another national teacher survey by Gallup (2014), 46% of K-12 teachers reported high daily stress during the school year. This rate is tied with nurses (46%) and higher than physicians (45%) for the highest stress rate among the 14 occupations included in the survey.

Teachers play a crucial role in students' education; they are the providers of knowledge and curriculum (Gupta & Rani, 2014). Teachers facilitate academic instruction, behavior management, and social-emotional learning to a classroom full of students with varying abilities. Teachers also help students develop the skills necessary to become productive and successful citizens (Allen & Kelly, 2015; Jennings & Greenberg, 2009). More recently, teachers support students' mental health and well-being (Ouellette et al., 2018). As cited in the National Center for School Mental Health (2020) publication titled Supporting Student Mental Health: Resources to Prepare Educators, teachers are supporting student mental health through "building relationships with students, creating a welcoming and safe learning environment, promoting and rewarding positive behaviors, teaching social-emotional skills, identifying and referring students in need of mental health services, using strategies to help support students with mental health concerns in the classroom, and collaborating with school and community mental health professionals" (p. 2).
Even though teaching can be rewarding, today's teachers face increasing demands to effectively raise students' academic achievement and meet their social-emotional needs (Greenberg et al., 2016). Increased demands for effective teaching have increased teachers' feelings of stress and burnout (Grissom et al., 2014). An example of this is the increased use of student test performance within teacher quality evaluations, which von der Embse et al. (2015) reported may increase teacher stress. Legislation such as the No Child Left Behind Act (NCLB, 2001) required states to set strict performance standards for every school, track student learning across a wide range of levels, and enact steep consequences for schools, districts, and states that failed to meet performance goals (Matthews, 2004). Due to the NCLB Act's negative criticism, the Every Student Succeeds Act (ESSA, 2015) was established and provided states a more flexible approach to student testing, school accountability, and decreased federal oversight of teacher evaluation based on student tests scores. Brownstein (2017) reported that while some states and districts moved away from rigorous teacher evaluations, others continue to use high-stakes testing as a factor in evaluating teacher accountability.

Despite changes in the legislation, high-stakes accountability and standardized testing remain a significant contributor to teacher stress. In a multi-state study with 1866 teachers, Ryan and colleagues (2017) examined the relationship between test-based accountability policy at the state level, teacher test stress, teacher burnout, and teacher turnover intentions while controlling for years of teaching experience. Findings revealed that test-based accountability policies predicted higher rates of teacher turnover and stress. Other contributors to teacher stress include time demands, lack of preparation, limited resources, diverse student needs and differentiating instruction, student behavior problems and attitude, and difficult parents. Lack of collaborative time with colleagues, administrative expectations, lack of support from administrators, and
limited sense of autonomy and decision-making are also cited as sources of stress (Herman & Reinke, 2015; Rentner et al., 2016; Roeser et al., 2013).

**Statement of Purpose**

Understanding and addressing teacher stress are critical due to its detrimental effects, primarily on teachers and students. For example, high stress levels negatively affect teachers' work performance, teachers' health and well-being, work absenteeism, teacher retention, student achievement, school climate, and educational costs. (Greenberg et al., 2016). According to Maslach et al. (2001), prolonged teacher stress and low coping can lead to professional burnout and teachers leaving the profession due to job dissatisfaction. Job dissatisfaction contributes to teacher retention and shortages that have steadily increased over the past three decades in U.S. public schools (Clement, 2017). Carroll (2007) estimated that teacher attrition has risen by 50% in the last 15 years. The estimated cost of job turnover with public school teachers is more than $7.3 billion a year.

The trend of teacher stress, job dissatisfaction, and job turnover is even more present within high-poverty urban schools. Teachers in high-poverty urban schools are as much as 50% more likely to migrate or leave than those in low-poverty schools (Ingersoll, 2003). A lack of teachers in urban schools negatively impacts the effectiveness of teacher practices and student achievement (Rumschlag, 2017). Evidence shows that a teacher's quality is the most critical factor in raising student achievement (Gagnon et al., 2015). However, stress impairs teachers' ability to implement effective classroom practices and provide high-quality learning environments, resulting in more negative student social, emotional, behavioral, and academic outcomes (Bottiani et al., 2019). Due to job stress, high-poverty urban schools are losing teachers at a significant rate, resulting in poor teacher and student outcomes. Despite that, little is known
about the relation of teacher-reported stress on perceived supports, observed classroom practices, and student outcomes. More research on the matter is needed to support urban school districts in retaining effective teachers, promoting quality instruction, and improving student achievement.

LITERATURE REVIEW

History of Teacher Stress

Teacher stress is a prevalent matter in the teaching profession and has become an important research topic in many parts of the world. Interest in teacher stress and burnout was inspired by the idea that harmful occupational factors might compromise teachers' health (Guglielmi & Tatrow, 1998). For centuries, teaching has been characterized as a profession that is "emotionally taxing and potentially frustrating" (Lambert et al., 2006, p. 105). By the mid-1970s, there were very few studies of occupational stress and burnout in teachers. An early study by Cox et al. (1978) reported that when comparing teachers with other occupations matched for gender, age, and marital status, 79% of the teachers mentioned their job as a significant source of stress in their life, while only 38% of non-teachers did the same. Kyriacou and Sutcliffe (1978) found in their study that approximately 20% of teachers in England reported teaching to be very stressful or extremely stressful.

By the 1980s, there was an increase in the number of studies reported, and concern with teacher stress and burnout became international (Kyriacou, 1987). Research in a variety of countries has shown teaching as a highly stressful profession. For instance, in Malta, 34% of Maltese teachers rated their jobs as either very stressful or extremely stressful (Borg & Riding, 1991). In New Zealand, just over 26% of intermediate teachers reported teaching as either very or extremely stressful (Manthei & Gilmore, 1996). In England, 41.5% of teachers report high occupational stress (Smith et al., 2000). In Canada, amongst the more than one thousand teachers
surveyed, roughly 22-30% of teachers reported dissatisfaction with their job and the teaching profession (Browne, 2007). A 2006 survey study in Hong Kong, cited by Pang (2012), revealed that 90% of the 800 teachers who completed the survey reported they are under stress. McCarthy (2019) mentioned in Italy, almost 25% of teachers reported stress (Zurlo et al., 2013); 20-22% reported stress in Malaysia (Moy et al., 2014) and Germany (Unterbrink et al., 2007); and 25-26% reported stress in Australia (Garrick et al., 2014). Like the United States, significant teacher stress levels led to high teacher attrition rates in other countries (Chaplain, 2008; Kyriacou & Kunc, 2007).

The term "stress" first appeared to be used during the 14th century to describe hardship, adversity, or affliction (Lazarus, 1999). Some of the first analyses of stress in the 17th century by physicist-biologist Robert Hooke focused more on physics (Lazarus, 1999). The concept of stress, load, and strain emerged from his investigation and influenced the models of stress developed in the 20th century. Stress was defined as an external force or stimulus exerted on a physiological, psychological, and social system, and strain denoted the object's resulting internal distortion (Krohne, 2001). By the mid-1950's Hans Selye, an endocrinologist, conceptualized stress as the body's reaction to an event (a stressor) that threatens an organism's well-being and leads to physiological changes (Krohne, 2001). World War II and the Korean War prompted more research on stress due to the significant impact combat was having on soldiers. This research acknowledged the considerable role stress plays on human functioning and the ability to cope (Lazarus & Folkman, 1984).

The meaning of stress changed as research interests transitioned from physics to the behavioral sciences. Krohne (2001) cited that researchers defined stress as bodily processes created by circumstances that place physical or psychological demands on an individual. A
stressor was described as an external force that affects the body. Research identifies three types of stress: physiological, psychological, and social (Monat & Lazarus, 1985). Physiological stress involves changes in the body's biological system. Psychological stress involves cognitive factors that influence one's perception of a stressor (Lazarus, 1966). Social stress involves the disturbance of a social unit or system (Monat & Lazarus, 1985).

Definition of Teacher Stress

Richard Lazarus, a prominent psychologist in the study of psychological stress and coping, stated two concepts are central when discussing psychological stress: 1) appraisal, an individual's evaluation of the significance of what is happening for their well-being, and 2) coping, an individuals' efforts in thought and action to manage specific demands (Lazarus, 1993). Lazarus (1966) defined stress as an individual's awareness that environmental and personal demands have surpassed their support systems and coping resources. Stress that occurs in teachers within the school setting is recognized as teacher stress. Kyriacou (2001) defined teacher stress as "the experience by a teacher of unpleasant, negative emotions, such as anger, anxiety, tension, frustration or depression, resulting from some aspect of their work as a teacher" (p. 28). Teachers experience stress when their job demands exceed their ability to cope with these demands (Abel & Sewell, 1999).

As with any profession, all teachers experience stress, some expected, and even considered healthy (Smith, 2002). Not all teachers experience a level of stress that becomes distressing. Teachers cope differently with different types of stressors and perceive stress differently. Abel and Sewell (1999) noted that individuals' coping strategies are continually changing to manage their specific demands. If an individual lacks the adequate coping skill to handle a situation, they will perceive the situation as stressful. If an individual's ability to cope
exceeds their demands, they may not experience stress. Coping skills can reduce personal threats and help mediate stress responses.

**Theoretical Frameworks of Teacher Stress**

Kyriacou (2001) asserted that it is better to view teacher stress as resulting from a mismatch between educators' pressures and demands and their ability to cope with those demands. According to van Veldhoven (1996), teacher stress consists of two components: (1) stress causes and (2) stress responses. Stress causes are the work content and situations that affect a teacher at the cognitive, motivational, and emotional levels. Stress responses are the teacher's mental interpretations when experiencing stress causes.

The most prominent theory for conceptualizing stress and coping processes across occupational contexts, including education, is the Transactional Theory of Stress (Lazarus & Folkman, 1984). Researchers developed more recent theories to conceptualize stress and coping. These include the Prosocial Classroom Model (Jennings & Greenberg, 2009), the Stress Mindset Theory (Crum et al., 2013), and the Coping-Competence-Context (3C) Theory of Teacher Stress (Herman et al., 2020).

**The Coping-Competence-Context (3C) Theory of Teacher Stress**

The Coping-Competence-Context (3C) Theory of Teacher Stress (Herman et al., 2020) highlights three critical interconnected pathways to teacher stress: Coping, Competence, and Context. The 3C theory builds upon the transactional theory, stress mindset theory, and the prosocial classroom model by integrating the theories to provide a new framework for understanding teacher stress and coping associated with student and teacher outcomes and intervention. The present study is grounded in the 3C theory because it analyzed connections
between teacher stress, classroom management practices, and student outcomes within the classroom setting.

**The Coping Pathway.** The Coping pathway links individual teacher characteristics to stress (Herman et al., 2020). Individual characteristics include stress mindset, interpersonal qualities, and coping skills. A teacher's response to stress is based on their perception of stress and coping. The Stress Mindset Theory (Crum et al., 2013) proposed a teacher's perception of stress precedes and can determine stress levels. The theory suggested that positive stress beliefs lead to positive outcomes, while negative stress beliefs yield adverse outcomes when faced with stressors. Teachers who view stress negatively perceive that they lack the internal resources to meet external pressures. Teachers who view stress positively perceive that they possess the internal resources to meet external pressures. Kim et al. (2020) conducted a study that concluded that stress mindset predicted job stress in a sample of 310 preschool teachers. Additionally, those who believe in the positive benefits of stress were less likely to leave their jobs within the school year.

Prior theory and research suggest that coping skills moderate stress levels and the adverse effects of stress on teachers and students (Chan, 1998; Herman et al., 2020; Kyriacou, 2001). This claim is supported by Herman et al.'s (2020) study of middle school teachers, which found that teacher-reported high levels of stress alone did not predict many negative teacher and student outcomes. Coping skills had a moderating effect on stress outcomes because only teachers who reported high stress levels and low levels of coping experienced negative teacher and student outcomes.

**The Competence Pathway.** The competence pathway links stress and classroom practices (Herman et al., 2020). Classroom practices include classroom management skills and
teacher-student interactions. According to this pathway, stress directly affects teacher practices, directly affecting student behaviors, directly affecting teacher stress levels (Herman et al., 2020). This process is similar to the "burnout cascade" described in the Prosocial Classroom Model by Jennings and Greenberg (2009, p. 492). The Prosocial Classroom Model highlights the importance of teachers' social and emotional competence (SEC) and well-being in developing and maintaining supportive teacher-student relationships, effective classroom management, and successful social and emotional learning program implementation. Social and emotional competence consists of the following skills: self-awareness, social awareness, responsible decision making, self-management, and relationship management (Zins et al., 2004). SEC influences a teacher's ability to cope with the emotional demands of teaching. According to the model, teachers with high SEC could mitigate the adverse effects of stress on their well-being and students when faced with a challenging situation. When faced with a difficult situation, teachers with low SEC experience emotional stress and have difficulty managing their emotions. Experiencing frequent negative emotions causes emotional exhaustion, reduced motivation, and feelings of self-efficacy. The outcome is ineffective classroom management, negative classroom climate, negative teacher-student interaction, increased student misbehavior, and poor academic outcomes.

Teacher stress can increase harsh and reactive behavioral management strategies that escalate student disruptive behaviors, resulting in more teacher stress. A study by Reinke et al. (2013) on elementary school teachers found that teachers who reported higher burnout levels used more harsh and ineffective classroom management strategies. Teachers who reported higher self-efficacy in classroom management used more proactive classroom strategies. Herman et al. (2020) found that teachers with high stress/low coping profiles had higher burnout, lower self-
efficacy, higher rates of observed reprimands, and higher student-reported depression than the other profiles. The current study will analyze variables related to the competency pathway of the 3C theory: teacher stress, classroom management, and student academic and behavioral outcomes.

**The Context Pathway.** The Context pathway suggests that school and system policies and practices contribute to teacher stress (Herman et al., 2020). Such factors include administrative support and standardized testing. These contextual factors impact teacher stress, burnout, and attrition (Ryan et al., 2017). Kim et al. (2020) found that school context explained 18% of teacher job stress variance amongst a group of 310 preschool teachers. In another study by Bottiani et al. (2019) consisting of a sample of 255 urban middle school teachers, results showed that teachers reporting more self-efficacy, affiliation with colleagues, and student emphasis on their academics (i.e., more resources) reported lower stress and burnout.

**Common Sources of Teacher Stress**

Research investigating the sources of teacher stress dates back decades to the 1970s. An early study by Coates and Thorsen (1976) found that commonly reported sources of teacher stress include time demands, clerical duties, difficulties with pupils, motivation, and control of students, large classes, financial constraints, and lack of educational supplies. Sources of teacher stress are a result of a combination or interaction of a variety of factors, broken down into three overarching factors: individual factors, classroom factors, and organizational factors (Camacho & Parham, 2019; Kyriacou, 2001; Kyriacou, 2011; Ouellette et al., 2018).

**Individual Factors**

Individual factors contributing to teacher stress include age, experience, self-defeating thoughts, low self-efficacy, poor coping skills, and social supports (Klassen & Chiu, 2010;
Kyriacou, 2001; Ouellette et al., 2018). When comparing individual factors of teacher stress, Dicke et al. (2014) discovered that teacher self-efficacy most strongly predicted teacher stress and burnout.

**Classroom Factors**

Classroom factors contributing to teacher stress include student problem behaviors and attitude, student-teacher interaction, classroom management, and differentiating instruction (Jennings & Greenberg, 2009; Kyriacou, 2001; Ouellette et al., 2018). Several studies on teacher stress identified students' problem behaviors as the primary source of stress. In the U.K., a survey conducted by Brown et al. (2002) indicated that one of the main factors related to teachers' desire to leave the teaching profession were student behavior and discipline problems. Geving (2007) found that poor student behavior is a leading contributor to teacher stress, especially in secondary level teachers. Ozdemir (2007) identified student discipline problems as among the most influential factors contributing to teacher burnout. Bottiani et al. (2019) found that observed student problem behaviors were associated with higher teacher stress levels and burnout.

**Organizational Factors**

Organizational factors contributing to teacher stress include poor working conditions, low salaries, school culture and climate, time pressure, demanding workload, lack of resources, principal leadership, role ambiguity, changes in academic requirements, test-based accountability policies, teacher evaluation systems, and not feeling appreciated by administrators, parents and the general public (Clement, 2017; Herman & Reinke, 2015; Herman et al., 2020; Kyriacou, 2001; Mazzone & Miglionico, 2014; Ouellette et al., 2018; von der Embse et al., 2016). Previous studies have found that organizational factors most consistently predict stress and job satisfaction
and are most frequently reported by teachers as a significant contributor to stress (Dorman, 2003; Shernoff et al., 2011).

**Outcomes of Teacher Stress**

When teachers experience prolonged stress and are not sufficiently coping, this may lead to negative teacher and student outcomes and is costly for the educational system.

**Teacher Outcomes**

**Teacher Health and Well-being.** Stress impacts teachers' physical and mental health over time. Stress-related symptoms include respiratory illness, peptic ulcers, hypertension, heart disease, stroke, back pain, rheumatoid arthritis, headaches, insomnia, depression, general anxiety, low self-concept, confused thinking, and symptoms of paranoia, increased absenteeism, poor relationships with others, and poor work performance (Matheny et al., 2000; Morocco & McFadden, 1982). A study by De Souza et al. (2012) on high school teachers found that 46% of teachers were diagnosed with excessive daytime sleepiness and 51% with poor sleep quality, compromising health, quality of life, and teaching performance. Wolfram et al. (2013) discovered that chronic work stress and exhaustion are associated with adverse changes in biological indicators of stress, and chronically stressed teachers show atypical daily patterns of physiological stress reactivity (cortisol). Not only are teacher cortisol levels affected by stress, so are student levels. Oberle and Schonert-Reichl (2016) found higher salivary cortisol levels in students with teachers who reported higher burnout levels.

Teachers who experience burnout have an absence of positive emotions, which connects burnout to dysphoria and anhedonia, the central factors of depression (Schonfeld & Bianchi, 2016). Shin et al. (2013) found that teacher stress and burnout predicted depression. Research by Ferguson et al. (2012) on predictors of anxiety, depression, and job satisfaction in teachers
indicated that stress factors such as workload and student behavior were significant predictors of
depression. Workload, student behavior, and employment conditions were significant predictors
of anxiety.

**Teacher Burnout.** Prolonged stress and teachers' inability to cope are associated with
teacher burnout, which is defined as extreme exhaustion, both physical and psychological,
resulting in feelings of weakness and incompetence (Hansen & Sullivan, 2003). Burnout consists
of emotional exhaustion, depersonalization, and diminished personal accomplishment (Maslach
et al., 2001). Teachers who experience burnout are more likely to show less empathy towards
students, become detached from students, and be less involved with their students interpersonally
(Gastaldi et al., 2014). Reinke et al. (2013) found in their study that elementary school teachers
who reported higher levels of emotional exhaustion demonstrated lower rates of positive to
negative interaction, higher rates of harsh reprimands, and higher rates of classroom disruptions.

**Teacher Attrition.** Teachers who are experiencing stress and burnout are more likely to
leave the teaching profession (Wong et al., 2018). Mazzone and Miglionico (2014) report that in
2010 more than 26.5% of teachers left the teaching profession to pursue other occupations. Early
in their career, data showed that as many as 40-50% of teachers leave the profession within their
first five years. (Darling-Hammond, 2010; Ryan et al., 2017). This rate is even more significant
in urban school districts (Bottani et al., 2019). Teacher attrition drains resources, costs school
districts money, reduces teacher quality, and widens the achievement gap (Shields, 2009).
Haynes (2014) reported that hiring new teachers and training them for open positions costs the
educational system billions. The cost per teacher is estimated at over $4,000 in rural areas to over
$17,000 in urban districts (Carroll, 2007). Ronfeldt et al. (2013) examined the impact of teacher
attrition on student achievement. They estimated the effects of teacher turnover on over 850,000
New York City fourth- and fifth-grade student observations over eight years. Results showed that teacher turnover led to lower fourth and fifth-grade student achievement in math and language arts.

**Teacher Classroom Practices.** Elevated stress levels can also interfere with teachers' effective learning and implementation of evidence-based interventions, as well as their perceptions of an intervention's feasibility (Ouellette et al., 2018). Evidence-based interventions can reduce problem behaviors, increase academic achievement, and reduce emotional exhaustion among teachers (Ouellette et al., 2018; Ross et al., 2012). However, teachers experiencing high stress and burnout may be less likely to use evidence-based behavioral practices in the classrooms (Domitrovich et al., 2008). Teachers with high stress and low support are less likely to implement new practices (Ransford et al., 2009). They also exhibited less implementation fidelity and adherence to interventions (Wehby et al., 2012).

**Student Outcomes**

**Student Academic Performance.** High levels of teacher stress and low job satisfaction have been associated with lower classroom effectiveness, interfering with instruction and student learning (Abel & Sewell, 1999; Kokkinos, 2007). Conversely, high teacher engagement predicts higher student engagement and higher student achievement outcomes (Gallup, 2009; Gordon, 2010). Gastaldi et al. (2014) found a significant correlation between teacher stress and burnout and student academic performance. According to Shen et al. (2015), teacher stress negatively affects students' motivation to learn, impairing academic achievement. Teachers experiencing stress have less empathy and are detached from students, resulting in low academic achievement. Herman et al. (2018) conducted a study examining the relationship between teacher stress, burnout, coping, and self-efficacy. Results concluded that high stress, high burnout, and low
coping were associated with the most unsatisfactory student outcomes (higher disruptive behaviors and lower academic achievement). A longitudinal study by McLean and Connor (2015) showed that elementary school teachers who have more significant stress and show more symptoms of depression create classroom learning environments that are less conducive to learning, leading to lower academic performance. Students with such teachers achieved smaller academic gains than did peers whose teachers reported fewer symptoms.

**Student Behavioral Functioning.** Positive interaction with students promotes academic engagement and positive behaviors (Thapa et al., 2013). However, high stress is associated with lower quality teacher-student interactions and poorer student functioning (Clunies-Ross et al., 2008; Yoon, 2002). Aloe et al. (2014) reported that higher levels of teacher stress and burnout are associated with increased student disruptive behaviors. According to Hoglund et al. (2015), teachers who reported high levels of stress and burnout during the beginning of the school year tend to have classrooms with more behavior problems. Students with highly stressed teachers exhibited lower levels of social adjustment and academic performance. A study conducted by O'Connor et al. (2011) showed that high-quality teacher-student relationships predicted fewer student problem behaviors in the classroom.

**The Unique Needs of Teachers in Urban Schools**

While all teachers experience stress, teachers in urban schools may more acutely experience stress due to high job demands and low resources (Bottiani et al., 2019). A recent U.S. study by Herman and colleagues (2018) found that out of 121 urban elementary school teachers, 93% reported experiencing high stress levels. Teachers in urban schools are at a higher risk of stress, burnout, and attrition due to the significant and unique challenges they face (Ouellette et al., 2018). They encounter stressors that are not typical in suburban or rural schools.
Compared to teachers working in higher income, suburban and rural schools, teachers in urban schools serve primarily minority and low-income students (Markow, Moessner & Horowitz, 2006). These students typically live in poverty and disproportionately suffer from academic difficulties and social-emotional stressors due to financial instability, food insecurity, community violence, and other traumas (as cited in Camacho & Parham, 2019). Teachers often deal with outside social service agencies such as The Department of Children and Families, housing authority, homeless shelters, and foster care agencies (Patterson et al., 2004).

Numerous studies reported managing student behavior and student engagement as significant stressors for urban teachers. According to a study by Abel and Sewell (1999), disruptive student behavior is consistently and potentially the best predictor of urban teacher stress. Abell and Sewell examined the sources of stress and burnout symptoms in 98 secondary school teachers from 51 rural and 46 urban school systems. Results showed that urban teachers identified poor working conditions, poor staff relations, and student misbehavior as the best predictors of burnout.

Shernoff et al. (2011) conducted a qualitative study examining urban teachers' perceptions of stress and the impact of stress and resources needed to alleviate stress. Out of the fourteen K-4th grade urban teachers interviewed, most teachers reported significant work-related stress, impacting their relationships and physical health. At least half of the teachers reported a lack of resources, excessive workload, school-level disorganization, managing behavior problems, and accountability policies as significant stress.

Camacho and Parham (2019) conducted a mixed-methods study investigating challenging classroom situations experienced by 164 K-12th grade, predominantly white female urban teachers. The five most reported challenges included student misbehavior, aggressive student
behavior, student motivation, lack of effective consequences, and behavioral health problems. Additionally, about half of teachers reported aggressive student behavior as a challenge.

The literature cites organizational climate as a common stressor in urban schools. In a recent examination of urban stress in several low-income schools, Ouellette et al. (2018) found that organizational health was the strongest predictor of stress and satisfaction in urban teachers faced with challenges with student behaviors. When the teachers were provided training on evidence-based interventions, its impact on stress or job satisfaction was not significant. Instead, their findings strongly suggest that organizational climate plays a primary role in determining urban teachers' overall stress levels on the job.

Urban schools, more than rural and suburban schools, suffer from high teacher absenteeism, high teacher turnover, high numbers of uncertified teachers, and more significant numbers of inexperienced teachers (Patterson et al., 2004). The National Commission on Teaching and America's Future's (2003) analysis of the Schools and Staffing Survey data from the National Center on Education Statistics found that teacher turnover is almost a third higher in low-income urban school districts. Thompson (2017) suggested that teacher stress in low socioeconomic schools could be so great that teachers may leave the profession after only one year. Haberman and Rickards (1990) pointed out that teachers need approximately three years to become competent in urban classrooms. Therefore, urban schools may be losing teachers right before they become effective professionals. Low retention of new teachers has significant, harmful consequences for schools and students (Murray, 2005). Constant teacher turnover leads to inconsistent implementation of curriculum and instruction (Guin, 2004). Turnover has negative implications for student learning and achievement. Barnes et al. (2007) stated that teacher attrition creates financial hardships for urban districts, where resources are already
limited and put towards recruiting, hiring, and training. To illustrate, in Chicago Public Schools, the estimated cost associated with teacher turnover is between 76 and 128 million annually.

To conclude, teachers in high-poverty urban schools report significantly high levels of stress that negatively impact teacher well-being, resulting in lowered work performance and poor student outcomes. Thus, more attention needs to be placed on the growing epidemic of teacher stress in urban school districts to reduce the consequences of stress on teachers, students, and schools, and the community (Thompson, 2017).

**Purpose of the Current Study**

Research on factors related to teacher stress in high poverty urban school settings is limited. Likewise, little is known about the relation of teacher-reported stress on perceived supports, observed classroom practices, and student outcomes. This present study addressed this literature gap by evaluating teacher stress in elementary schools serving high-poverty urban communities. Specifically, the current study assessed the relationship between teacher stress and support to classroom management practices and class-wide student academic and behavioral functioning.

The primary research questions were: 1) What is the nature and extent of teacher-reported stress in elementary schools that serve high-poverty urban communities? 2) What is the relationship between teacher ratings of stress and (a) instrumental supports, (b) emotional supports as measured by the Teacher Stress and Support Assessment (TSSA), (c) observed classroom instructional and behavior management practices as measured by the Classroom Strategies Assessment System (CSAS), (d) teachers' rating of class-wide student academic performance and (e) teachers' rating of class-wide student behavioral functioning? 3) Does teacher-reported supports (TSSA Instrumental and Emotional total scores), observed classroom
practices (CSAS total discrepancy score), and class-wide student outcomes predict teacher ratings of stress?

Based on prior research, it was hypothesized that 1) teachers will report high to very high ratings of stress, 2) teacher ratings of stress will be negatively correlated with support ratings, observed classroom practices, and class-wide student functioning, and 3) teacher ratings of supports, observed classroom practices, and class-wide student functioning will significantly predict teachers' ratings of stress.

**METHODS**

**Participants**

This study used baseline data from an RCT study conducted by Reddy, Shernoff, and Lekwa (2020) investigating the Classroom Strategies Coaching (CSC) Model effectiveness in 14 high-poverty K-5th grade schools in an urban school district in a northeastern city in the U.S. The RCT study participants included 2,195 students and 106 elementary school teachers. The teachers completed baseline (pre-assessment) measures approximately one week before the start of CSC. Data was collected on teacher support and stress, teacher strategy use, and class-wide student functioning. No significant differences between conditions for the teacher and classroom demographic characteristics were found (CSC vs. waitlist groups).

**Procedures**

The 14 participating elementary schools were selected through a screening process in which the schools met inclusion criteria (70% or more of students qualifying for free or reduced lunch). The first schools that agreed to participate were included in the study. Teachers were recruited for the study through various methods (distribution of flyers, in-person meetings with principals, presentations during faculty meetings). Participants were K-5th grade general
education or special education teachers and willing to collaborate with a coach to improve their usage of targeted instructional and behavior management strategies. Private follow-up meetings were conducted with interested teachers. Informed consent was obtained from participating teachers as outlined by the Institutional Review Board at Rutgers University.

**Measures**

**Teacher Stress and Support Assessment (TSSA)**

Teachers perceived instrumental support, emotional support, and stress will be measured using the Teacher Stress and Support Assessment (TSSA; Lekwa et al., 2018). The TSSA consists of three scales and 27 items on teacher ratings of support received and stress-related teaching. The Instrumental Support Scale (8 items; $\alpha = .92$) measures practical guidance, such as input from colleagues and instructional leaders regarding classroom practice. The Emotional Support Scale (6 items; $\alpha = .94$) measures teachers' feelings of acknowledgment, respect, and encouragement. For each item on the above two scales, the teacher rates (on a scale ranging from 1-5) the degree to which they agree or disagree with each statement regarding instrumental and emotional support. The Stress scale (13 items; $\alpha = .88$) measures teachers' stress experienced within the classroom context. For each item on the Stress scale, the teacher rates each item on a 5-point scale (1 = No Stress to 5 = Extremely High Stress). The item ratings within each scale were summed and averaged by the number of items completed to compute a total scale score. TSSA demonstrates good reliability, content, and construct validity.

**Classroom Strategies Assessment System (CSAS)**

The Classroom Strategies Assessment System (CSAS; Reddy et al., 2013) is a classroom observational system that combines direct observations and rating scales to assess changes in teacher's use of instructional and behavioral management practices. The CSAS contains three
parts: Strategy Counts, Strategy Rating Scales, and a Classroom Checklist. After the observation, observers complete the Instructional Strategies (I.S.) and Behavioral Management Strategy (BMS) Rating Scales. Using a 7-point Likert rating scale, independent observers rated (1) how often (observed frequency rating; 1=Never used, 3=Sometimes used, 7=Always used) the teacher used specific instructional and behavioral management strategies, and (2) how often the teacher should have used each strategy (recommended frequency). The CSAS yields two scores: (a) frequency of strategies used (Strategy Counts) and (b) quality of strategy used (Strategy Rating Scales). The Strategy Rating Scales yield scores indicating the discrepancy between the frequency with which observed teachers use evidence-based strategies and the recommended frequency with which they should use strategies during specific lessons. Small discrepancy scores indicate little suggested change in specific classroom practice. Large discrepancy scores indicate significant suggested change in specific classroom practice.

The CSAS evidence good test-retest reliability across a 2–3-week span ($r < .70$). High levels of internal consistency have been documented across all three sections ($\alpha < .90$). Acceptable inter-rater reliability estimates have also been found for Strategy Counts ($r = .94$), the I.S. Rating Scale ($r = .80$), BMS Rating Scale ($r = .72$), and the Classroom Checklist ($r = .86$). The CSAS demonstrates predictive validity with student achievement and student behavior. Based on differential item function analyses, the I.S. and BMS Strategy Rating Scale items are free from item bias. It also demonstrates convergent and discriminant validity with other classroom observational assessments.

The CSAS was completed by independent observers who were blind to condition assignment at baseline. For baseline assessment, two 30-minute classroom observations were conducted during times of active classroom instruction. Independent observers were
undergraduate and graduate students in the psychology and education program. Independent observers were primarily in their junior or senior years of undergraduate study. Independent observers were also predominantly European American and female (80%). Observers participated in a 3.5-day CSAS training. After training, observers were required to code five classroom videos to the criterion independently. The criterion used included at least 80% exact or adjacent agreement with Master coders.

**Teacher Ratings of Student Academic and Behavioral Functioning**

Teachers rated the extent to which they observed recent changes in class-wide student functioning, using a 7-point Likert-type rating scale ranging from 1 (Very Much Worse) to 7 (Very Much Improved). There were 7 items related to behavior functioning ($\alpha = .92$) and 8 items related to academic functioning ($\alpha = .88$). Sample items of this measure included: "At this time, please rate your classroom in terms of overall academic functioning."

**Data Analytic Approach**

Several data analytic methods were used to address the research questions, using baseline data from the TSSA, CSAS-observer, and teacher ratings of class-wide student academic performance and behavioral functioning. First, the nature and extent of teacher stress were analyzed through descriptive statistics, examining the TSSA stress scale total score and the 11 test items. Secondly, correlations were carried out to determine the relationship between teacher stress, emotional support, instrumental support, observed classroom practices, and student academic and behavioral functioning. Pearson correlation coefficients between .10 and .20 were considered small, between .30 and .40 medium, between .50 and .60 large, and between .70 and .80 very large. Correlations with magnitudes of .00s were considered trivial or not to exist, and correlations with magnitudes of .90s were nearly perfect (Cohen, 1992).
Thirdly, a multiple linear regression model assessed whether teachers' rating of supports, observed use of instructional and behavioral practices, and teacher's ratings of student academic and behavioral functioning predicted teachers' stress rating. In this model, the variables (predictors) were entered simultaneously. The F-test assessed whether the set of independent variables jointly predicts the dependent variables. The multiple regression coefficient of determination, $R^2$, was reported to demonstrate how much variance in the dependent variables can be accounted for by the independent variables. The standardized beta coefficients, $\beta$, were examined to compare the strength of the effect of each independent variable to the dependent variable.

**RESULTS**

JASP (Version 0.14.1) was used to complete all statistical analyses. Before the analysis, outcome and predictor variables were examined for accuracy of data entry, missing values, and fit between their distributions and multivariate analysis assumptions. Missing values analysis revealed between 13.5% to 15.9% of missing data. Results from Little's (1988) MCAR test indicated that no statistically reliable deviation from randomness was found: $\chi^2 (16, N = 125) = 25.02, p = .07$. Therefore, listwise deletion was used in the analyses. Of the 125 teachers included in the dataset, 103 teachers were included in the analysis.

Data were examined for the assumptions of linearity, independence, multivariate normality, homoscedasticity, and multicollinearity. A visual analysis of each variable's distribution was conducted; no substantial deviation from normality was evident. Values of skewness for each variable ranged between -0.881 and +0.585 and kurtosis between -0.238 and +1.870. All values were within ranges typically accepted as a threshold for skewness and kurtosis (+/-2; Gravetter & Wallnau, 2016). Outliers were identified through a visual analysis of
boxplots for each variable and retained in the analysis, as it represented actual participant responses and did not reduce statistical significance. No cases were found to have a Cook's distance greater than 1; the largest was 0.067, indicating that none of the cases had undue influence on the model.

Homoscedasticity was examined by plotting the residual versus predicted values, and the plot revealed assumption of homoscedasticity was not violated (i.e., the residual values were within 3). Examining the Q-Q plot for the normality of the residuals revealed the residuals for the regression equations appeared to be normal. The Durbin-Watson statistic for correlation in residuals ranged from 2.02 to 2.04, and this is within the recommended ranges to meet the assumption of independent error terms. No violation of multicollinearity was present, as the correlations were not considered high. An examination of tolerance and variance inflation factor (VIF) statistics confirmed the assumption of multicollinearity was met. All Tolerance statistics were above .10, ranging from 0.48 and 0.95; No VIF statistics exceeded 10, ranging from 1.06 and 2.09.

Descriptive statistics for each measure are displayed in Table 1, including sample means and standard deviations. The mean for the overall CSAS discrepancy scores was (M = 53.61, SD = 20.87). The high standard deviation indicated there is greater variability amongst discrepancy scores. The mean for teacher ratings of student academic performance was (M = 4.51, SD = 0.73). The mean for teacher ratings of student behavioral functioning was (M = 4.51, SD = 0.89). The mean for teacher ratings of emotional support was (M = 3.46, SD = 0.74), indicating an impartial opinion on the supports they received from school leaders, colleagues, and others. The mean for teacher ratings of instrumental support was (M = 3.29, SD = 0.71), indicating an impartial view of the quality of information, resources, and feedback they received to enhance
instruction and classroom behavior management. The mean for teacher ratings of stress was (M = 2.79, SD = 0.76), indicating low stress to moderate stress levels. The low standard deviation showed less variability amongst teacher's rating of stress, student outcomes, and supports.

**Table 1 - CSAS, TSSA, Teacher Ratings Descriptive Statistics (N = 103)**

<table>
<thead>
<tr>
<th>Observed classroom practices (CSAS Discrepancy score)</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrumental Support</td>
<td>3.29</td>
<td>0.71</td>
</tr>
<tr>
<td>Emotional Support</td>
<td>3.46</td>
<td>0.74</td>
</tr>
<tr>
<td>Stress</td>
<td>2.79</td>
<td>0.76</td>
</tr>
<tr>
<td>Class-wide Academic Functioning</td>
<td>4.51</td>
<td>0.73</td>
</tr>
<tr>
<td>Class-wide Behavioral Functioning</td>
<td>4.51</td>
<td>0.89</td>
</tr>
</tbody>
</table>

R.Q. 1 - What is the nature and extent of teacher-reported stress?

Research question 1 was addressed using descriptive statistics, examining the TSSA stress total score and each of the 11 items. Table 2 consists of TSSA mean scores and standard deviations. Cases with missing responses were deleted from the analysis. Teachers rated their stress level for each item on a 5-point scale (1 = No Stress, 2 = Low Stress, 3 = Moderate Stress, 4 = High Stress, and 5 = Extremely High Stress). The mean for stress total was (M = 2.81, SD = 0.77), suggesting that teachers reported between low stress to moderate stress. Student performance on standardized tests received the highest mean score (M = 3.40, SD = 1.26), suggesting moderate stress. Relationship with colleagues received the lowest mean score (M = 1.87, SD = 0.80), indicating no stress to low stress.
**Table 2 - TSSA Stress Scale Descriptive Statistics (N = 98)**

<table>
<thead>
<tr>
<th>Category</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching</td>
<td>3.36</td>
<td>1.10</td>
</tr>
<tr>
<td>Student Relationships</td>
<td>2.43</td>
<td>0.95</td>
</tr>
<tr>
<td>Parent Relationships</td>
<td>2.35</td>
<td>1.04</td>
</tr>
<tr>
<td>Colleague Relationships</td>
<td>1.87</td>
<td>0.80</td>
</tr>
<tr>
<td>Behavior Problems</td>
<td>3.01</td>
<td>1.18</td>
</tr>
<tr>
<td>Student Engagement</td>
<td>3.11</td>
<td>1.10</td>
</tr>
<tr>
<td>Student Learning</td>
<td>3.17</td>
<td>1.05</td>
</tr>
<tr>
<td>Student Mental Health</td>
<td>2.74</td>
<td>1.25</td>
</tr>
<tr>
<td>Standardized Tests</td>
<td>3.40</td>
<td>1.26</td>
</tr>
<tr>
<td>Instructional Resources</td>
<td>2.86</td>
<td>1.10</td>
</tr>
<tr>
<td>Human Resources</td>
<td>2.63</td>
<td>0.99</td>
</tr>
<tr>
<td>Stress Total</td>
<td>2.81</td>
<td>0.77</td>
</tr>
</tbody>
</table>

**R.Q. 2 -** What is the relationship between teacher stress, supports, classroom practices, and class-wide student functioning?

Pearson correlation coefficients were computed to address research question 2. The analysis involved two-tailed tests with an alpha level of .05. Pearson correlation coefficients are presented in Table 3. Small to medium negative correlations were observed between Teacher Stress and Academic Functioning ($r = -0.21, p < 0.05$), Behavioral Functioning ($r = -0.30, p < 0.01$), Emotional Support ($r = -0.27, p < 0.01$), and Instructional Support ($r = -0.29, p < 0.01$). No relationship was observed between Teacher Stress and Classroom Practices (overall discrepancy score).

**Table 3 - Pearson’s Correlations (N = 103)**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Stress</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Instrumental Support</td>
<td>-.29**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Emotional Support</td>
<td>-.27**</td>
<td>.58***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Observed classroom practices</td>
<td>.00</td>
<td>-.12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Class-wide Academic Functioning</td>
<td>-.21*</td>
<td>.36***</td>
<td>.36***</td>
<td>.13</td>
<td></td>
</tr>
<tr>
<td>6. Class-wide Behavioral Functioning</td>
<td>-.30**</td>
<td>.40***</td>
<td>.34***</td>
<td>.06</td>
<td>.70***</td>
</tr>
</tbody>
</table>

* $p < .05$, ** $p < .01$, *** $p < .001$
R.Q. 3 - Does teacher supports, classroom practices, and class-wide student functioning predict teacher stress?

Research question 3 was addressed through multiple regression analysis. Table 4 contains the standardized and unstandardized parameter estimates. In this model, the variables (predictors) were entered simultaneously. Results showed that jointly, the five variables predicted teacher stress and accounted for 13.3% of its variance ($R^2 = 0.13$, $F(5,97) = 2.98$, $p < .05$). Examination of the unique contribution of each predictor revealed that none of them significantly predicted teacher-reported stress.

<table>
<thead>
<tr>
<th>Predictors</th>
<th>$B$</th>
<th>$SE$</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrumental Support</td>
<td>-.15</td>
<td>.13</td>
<td>-.14</td>
</tr>
<tr>
<td>Emotional Support</td>
<td>-.13</td>
<td>.12</td>
<td>-.13</td>
</tr>
<tr>
<td>Observed classroom practices (CSAS Discrepancy score)</td>
<td>-7.22</td>
<td>.00</td>
<td>.02</td>
</tr>
<tr>
<td>Class-wide Academic Functioning</td>
<td>.06</td>
<td>.14</td>
<td>.06</td>
</tr>
<tr>
<td>Class-wide Behavioral Functioning</td>
<td>-.20</td>
<td>.12</td>
<td>-.23</td>
</tr>
</tbody>
</table>

Note. ($R^2 = .13$, $F = 2.98$, $p < .05$)
* p < .05. ** p < .01. *** p < .001

DISCUSSION

The current study adds to the literature on teacher stress in high-poverty urban elementary schools. Specifically, this study examined the nature and relations between teacher stress, teacher supports, classroom management practices, and class-wide student academic and behavioral functioning.

For this study, it was hypothesized that teachers would report high levels of stress. Instead, participating teachers reported moderate levels of stress. This result contrasts with several studies that found that teachers in urban schools face more elevated stress levels than teachers in suburban and rural school settings (Ferreira & Martinez, 2012; Markow et al., 2006; Ouellette et al., 2018; Shernoff et al., 2011). Likewise, a national teachers survey conducted by
Gallup (2014) found in general, teachers reported high levels of work-related stress. These findings are further supported by additional investigations reporting 93% of 121 urban elementary school teachers who participated in their study experienced high stress levels (Mazzone & Miglionico, 2014).

Across the 11 stress items, the level of stress reported ranged from low stress to moderate stress. The items within the moderate stress range were classroom-level stressors. These included, in order of mean score, student performance on standardized tests, teaching, student learning process, student engagement, and behavior problems. Prior research that proposed student problem behavior is the primary source of urban teacher stress. It was assumed that teachers in this study would rate student behavior as the most significant source of stress, scoring within the high to extremely high stress range (Abel & Sewell, 1999; Balfanz et al., 2007; Bottiani et al., 2019; Brown et al., 2002; Geving, 2007; Ozdemir, 2007). However, the results from this study revealed teachers did not experience high levels of stress for student behavior and did not consider it the number one source of stress.

Interestingly, student performance on standardized tests received the highest average rating of stress. These results support the literature's claim that high-stakes accountability and standardized testing are significant contributors to teacher stress. In their study on the relationship between test-based accountability policies and teacher stress and school climate, Von der embse et al. (2016) discovered that increased accountability pressure predicted increased stress in the environment, curriculum-related stress, teacher stress in general, and teacher stress specific to testing. Another study by Ryan and colleagues (2017) on test-based accountability policy revealed that test-based accountability policies predicted higher teacher turnover rates and stress.
The second research question hypothesized that significant relationships would exist between teacher ratings of stress, supports, observed classroom practices, and class-wide student functioning. Pearson correlation results showed a small to medium negative relationship between teacher-reported stress and 1) teacher-reported emotional support, 2) teacher-reported instrumental support, 3) teachers' rating of class-wide student academic functioning, and 4) teachers' rating of class-wide student behavioral functioning. According to these results, teachers who reported higher stress levels tend to report lower levels of emotional support. The association between teacher stress and emotional support was consistent with other research, which found that when teachers rated their relationships with colleagues higher, they reported lower stress (Bottiani et al., 2019). Greenberg et al. (2016) indicated that high teacher trust in school leaders and colleagues is related to lower stress. Factors related to instrumental support include lack of supervisor support, collaborative time with colleagues, administrative expectations, lack of support from administrators, and limited sense of autonomy and decision-making (Herman & Reinke, 2015; Rentner et al., 2016; Roeser et al., 2013). The results from this study suggest teachers who reported higher levels of stress tend to report lower levels of instrumental support.

Data from this study indicated teachers reporting higher levels of stress reported lower student outcomes. These findings support the study’s hypothesis and are consistent with the results of Aloe et al. (2014), Gastaldi et al. (2014), and Shen et al. (2015). They discovered significant correlations between teacher stress and student academic performance and behavioral functioning. High levels of teacher stress negatively affect students' motivation to learn, student academic achievement, quality teacher-student interactions, and student behavioral functioning.
It was hypothesized that there would also be a significant relationship between teacher stress and classroom practices. Yet, data from the current study showed no significant relationship, which contrasts with previous research. Abel and Sewell (1999) and Kokkinos (2007) indicated an association with high teacher stress levels and lower classroom effectiveness. Domitrovich et al. (2008) cited in their study that teachers who were experiencing high stress were less likely to use evidence-based behavioral practices in the classrooms. Additionally, teachers experiencing high stress are also less likely to implement new practices and implement interventions with fidelity (Ransford et al., 2009; Wehby et al., 2012). However, in the study by Ouellette et al. (2018), even when teachers were provided training on implementing evidence-based interventions, it did not appear to impact teachers' work-related stress significantly. Instead, their study suggested a more significant relationship exists between teacher stress and organizational-level factors than classroom-level factors.

The third research question hypothesized that supports, classroom practices, and student outcomes would predict teacher stress. This study is one of the first to explore the effects this set of predictors jointly has on teacher stress. Results from the multiple regression analysis support the hypothesis; the model (consisting of the five predictors: teacher-reported emotional support, instrumental support, observed classroom practices, and teacher-reported class-wide student academic and behavioral functioning) significantly predicted teachers’ ratings of stress. Yet, individually, the predictors were not significant in predicting teacher stress. It was somewhat surprising that student outcomes did not account for any variance in predicting teacher stress. Managing students' misbehavior and student engagement is considered a significant source of stress, and past research indicated a significant relationship between teacher stress, student
academic performance, and student behaviors (Abel & Sewell, 1999; Camacho & Parham, 2019; Shernoff et al., 2011). However, this study was unable to support those findings.

Limitations and Future Research

The following limitations of this study support caution when interpreting the results and suggest further research. Data were obtained from K – 5th grade teachers from one urban school district. Therefore, the generalizability of the findings to other samples of teachers, for example, secondary urban school teachers, is limited. Also, participants in the study were volunteers interested in receiving support through the RCT's consultation intervention. It did not include teachers who were mandated or identified by school leaders in need of the intervention. Thus, it is possible that teachers who were stressed but motivated selected to participate, rather than teachers who were stressed but unmotivated to participate. It is unclear if the study would produce similar results if it also included mandated or identified teachers. This may have prevented the study from capturing the experiences of a more accurate sampling of urban teachers. Future studies should include a more representative sample of teachers, including voluntary and involuntary teachers, middle and high school teachers, to improve generalizability.

Secondly, there is the possibility that the teachers underreported their levels of stress due to social desirability. Additionally, the TSSA does not factor in individual characteristics related to teacher stress, such as age, experience, personality type, self-efficacy, coping skills, social support, and subjective perceptions. Crum et al. (2013) proposed that a teacher's perception of stress precedes and can determine stress level. Future studies should include measures to mitigate the impact of social desirability. Future studies should also examine the effects teacher characteristics have on TSSA stress scale scores.
Finally, the last limitation of this study was the absence of qualitative data. Qualitative data may have provided more information and a richer understanding of teachers' stress and outcomes within this specific urban school district. A qualitative component subsequently could assist the interpretation of quantitative data on teacher stress and examine the generalization of the results from other school systems. Future studies exploring the nature and extent of teacher stress in urban schools should utilize various methods, such as quantitative and qualitative measures of stress.

**Implications for Practice**

Being a teacher can be both stressful and rewarding. However, being a teacher in an urban setting may include additional stressors due to poverty, incarceration, crime, insufficient resources, etc. Faced with higher stress levels, urban teachers increasingly experience burnout, which leads them to leave the teaching profession at alarming rates (Fantuzzo et al., 2012; Yang et al., 2009). Data from the National Commission on Teaching and America's Future report cited the national turnover rate as 16.8% and over 20% in urban schools (Carroll, 2007).

Teachers in this study experienced some work-related stress. By identifying negative correlations between teacher stress, emotional and instrumental supports, and student outcomes, interventions addressing these classroom and organizational level factors may help reduce stress, benefitting teachers and students in urban schools. In this study, relationships with colleagues received the lowest stress rating, but teaching, student learning, and engagement ratings were greater. Ingersoll and Strong (2011) analyzed 15 empirical studies on the effects of support, guidance, and orientation programs for beginning teachers. They found that such supports yielded positive teacher commitment and retention, classroom instructional practices, and student achievement. However, in one study where the sample was high-poverty urban schools, positive
effects were found only for student achievement. More urban schools should consider implementing support programs and mentoring teachers to explore its impact on retention, instructional practices, and student outcomes. Future studies on support, guidance and orientation programs should also examine its effect on teacher stress, particularly in urban schools. Additionally, urban districts should provide professional development and coaching opportunities to increase teachers' self-efficacy to effectively support positive behavior and respond to student needs in the classroom.

With standardized testing receiving the highest stress rating, more attention needs to be placed on reforming test-based accountability policies. Recent studies from Ryan et al. (2017) and von der Embse et al. (2016) provided insightful data on increased stress due to accountability policies. Moreover, test-based accountability indirectly affects teacher burnout and attrition (Ryan et al., 2017). Among teachers surveyed in the OECD Teaching and Learning International Survey, 65% of teachers across 23 countries reported that student test scores were an essential component of their teacher appraisals (OECD, 2013). Recent studies have also shown negative consequences with using test scores to evaluate teachers, including increased teacher stress and student anxiety (Putwain, 2008; Saeki et al., 2015; von der Embse et al., 2015). Understanding how educational policy influences teacher stress is an essential step in reducing attrition and supporting teachers and schools.

Summary

More attention needs to be placed on the growing epidemic of teacher stress to reduce the consequences of stress on teachers, students, and communities. The current study contributes to the literature evaluating teacher stress in elementary schools serving high-poverty urban neighborhoods. The results from this study build on existing evidence that teachers in urban
schools are experiencing stress. Overall, teachers in the study reported a moderate stress level, specifically regarding student performance on standardized tests, teaching, student learning process, student engagement, and behavior problems. Negative associations between teacher stress, teacher support, and student outcomes were found and suggested that teachers who reported higher levels of stress also reported less teacher support and lower student outcomes. No association was found between teacher stress and classroom practices. The study provided new insight into teacher stress predictors, concluding that the interaction between supports, classroom practices, and student outcomes predicted teacher stress. These factors influence teacher stress in urban elementary schools.
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