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The Relationship Between Workplace Environment, Teacher Well-Being, and Young Children's Behavioral Outcomes

by

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Abstract

Early childhood educators are asked to provide a nurturing, high-quality learning environment which will support positive developmental outcomes for all children. However, when teachers are not provided with adequate workplace support or training, this can have deleterious effects on their psychological well-being and the way they interact with the children in their care. As a result of teachers feeling overwhelmed and stressed, children's development may be negatively impacted. **Purpose:** Using Urie Bronfenbrenner's bioecological model of human development as a theoretical framework, this study investigated the relationship between workplace environment, teachers' psychological well-being, and children's behavioral outcomes. **Objective.** There are three primary goals of this paper: (1) to analyze the prevalence of depressive symptoms reported by Head Start teachers across gender; (2) to understand the relationship between workplace supports and experiences of depression among Head Start teachers; and (3) to examine the influence of workplace supports or classroom environment and teachers' depression on children's behavioral outcomes. **Methods.** Several correlations and multiple linear regression analyses were conducted in this study using data from the 2014 Head Start Family and Child Experiences Survey (FACES) to answer specific research questions. Measures included classroom observation and teacher and center director surveys. **Discussion.** Findings from this paper will begin to fill the existing gap in the research literature connecting workplace environments, teacher well-being, and children's developmental outcomes. Future directions and implications for policy within the early childhood profession are discussed.

Keywords: Workplace environment; Head Start; teachers' psychological well-being; child outcomes

The Relationship Between Workplace Environment, Teacher Well-Being, and Young Children's Behavioral Outcomes

Research has demonstrated that several factors affect the psychological well-being of early childhood educators, including their work environment and job satisfaction (Cumming, 2017). Additionally, workplace stress has been shown to negatively impact teacher-child relationships (Whitaker, Dearth-Wesley, & Gooze, 2015; Chen & Phillips, 2018) and ultimately children's behavior (Mantzicopolous, 2005). For example, teachers who experience work-related stress have been found to express more anger and hostility towards children, particularly those who exhibit behavior problems (Chen & Phillips, 2018). In addition to feelings of stress, it is important to consider the influence of early childhood educators' depressive symptoms on children's developmental outcomes. Individuals with depression are susceptible to experiencing feelings of sadness and depressed mood, fatigue, and difficulty thinking, concentrating or making decisions, all of which can lead to a decreased ability to function at work (Parekh, American Psychiatric Association, 2017). For early childhood professionals, these depressive symptoms could contribute to poorer quality teacher-child relationships and learning environments. Depression has been shown to have harmful effects on the emotional bond between adult caregivers and young children (Sandilos et al., 2015). Therefore, it is crucial to consider the psychological well-being of early childhood educators.

Early childhood educators are often inadequately trained and offered few resources to work with children from economically disadvantaged backgrounds, who are at higher risk of negative social-emotional, academic, and behavioral outcomes than their wealthier peers. Because of this, these teachers are especially likely to experience increased work-related stress. (Chen & Phillips, 2018). However, when early childhood professionals are adequately trained to

manage children's emotional and behavioral challenges, they are more likely to exhibit feelings of self-efficacy and increased sensitivity towards the children in their care, leading to children's increased positive social and behavioral functioning (Ritblatt, Hokoda, & Van Liew, 2017).

Although several studies have begun to examine the relationship between early childhood educators' experiences of depression and stress and the quality of care they provide for young children, there is a paucity of research in which the connection between these factors has been empirically examined. Next, a theoretical perspective is presented which will serve as a framework to contextualize the literature review linking teacher well-being, workplace environment, and children's developmental outcomes, as well as the proposed research questions and data analysis.

Theoretical Perspective

While it is known that workplace environment influences teachers' psychological well-being and teachers' well-being impacts children's behavioral outcomes, there is a gap in the literature which acknowledges that these three factors are associated with each other. According to developmental psychologist Urie Bronfenbrenner, children's development does not occur in isolation; rather, it occurs across multiple contexts. Therefore, the current study addressed this gap by utilizing Bronfenbrenner's bioecological model of human development (Bronfenbrenner & Morris, 2006) as a framework for contextualizing teacher well-being and children's development. This model consists of four systems which influence human development: the microsystem, the mesosystem, the exosystem, and the macrosystem (Bronfenbrenner & Morris, 2006). These systems are comprised of different environments, relationships, and forces which influence the individual who is situated at the center of the model. The most proximal system impacting the individual is the microsystem which includes his or her immediate environment

and the relationships within it. For example, a child's microsystem would include his or her home, school, or neighborhood and the relationships between the child and his or her parents, peers, and teachers. The mesosystem includes the interactions between individuals within the child's microsystem, such as the relationship between the child's parents and school teachers or administrators. The exosystem consists of elements of the microsystem which indirectly affect the child's development, such as a parent facing job loss which would lead to financial strain and increased parental stress. The macrosystem is all encompassing and includes government policies, socio-economic status, and cultural and societal beliefs which influence the other systems of the bioecological model and ultimately the child.

This study used Bronfenbrenner's bioecological model to demonstrate how young children's development is impacted by teachers' well-being and their ability to provide children with nurturing, high-quality learning environments. Children's learning environments and their relationships with their teachers exist within the microsystem. Additionally, the model was used to show how teacher well-being is influenced by workplace supports, which function within the exosystem. Ultimately, the level of support teachers receive may be influenced by the resources available at the community, state, and national level (the macrosystem).

The following section includes a literature review which addresses teacher well-being, workplace environments, and children's developmental outcomes. This review provides evidence further supporting Bronfenbrenner's theory that human development consists of, "the developing person, of the environment, and especially of the evolving interaction between the two," (Bronfenbrenner, 1979, p. 3); it also underscores the need for future studies to be conducted which acknowledge the relationship between teacher and workplace characteristics on child development.

Teacher Well-Being

While high-quality learning environments are critical to children's positive developmental outcomes, it is important to consider the influence of early childhood educators' psychological and emotional well-being on these outcomes. In a study by Friedman-Krauss et al. (2014), researchers found that teachers' reporting of child behavior problems was correlated with higher levels of teacher job stress, highlighting the fact that many early childhood teachers may not receive adequate training for managing children's behavioral problems. In addition to experiences of stress, depression among teachers has also been shown to impact their ability to provide high-quality learning environments. For example, one study found that teachers' experiences of depression were linked with decreased emotional and instructional support provided to students, as well as poorer quality classroom organization (Jennings, 2015). In another study which included 1,129 preschool teachers in the U.S., researchers found that teachers' depression, stress, and emotional exhaustion were correlated with their negative reactions to children. Furthermore, coping strategies that were more problem-focused and involved reappraisal emotion regulation were associated with teachers' positive reactions to children's negative emotions (Buettner et al., 2016). Researchers have also found that teachers whose preschool centers provided more supports for children's social and emotional learning experienced less depression, greater job satisfaction, higher feelings of support in managing students' challenging behaviors, and viewed their workplace climate more positively (Zinsser, Christensen, & Torres, 2016). These supports included "access to mental health consultants, classroom curriculum, and training and resources for teachers." Thus, these findings demonstrate that teachers' psychological well-being affects their ability to manage children's behavior in the classroom and that their well-being is influenced by their workplace environments.

Workplace Environment

Professional environments have been shown to significantly influence teachers' psychological and emotional well-being. One study revealed that several workplace factors including high demands and few work-related resources were associated with increased depressive symptoms among teachers (Roberts et al., 2017). However, when teachers have the support and resources they need, such as staff meetings focusing on child guidance and staff development issues, they experience increased job satisfaction and lower emotional exhaustion (Stremmel, Benson, & Powell, 1993). Other supports include teacher trainings, which have been shown to buffer against teacher stress and positively influence children's classroom engagement (Ota, Baumgarter, & Austin, 2013). When teachers are tired, depressed, and stressed, this inevitably influences their work and interactions with students. For example, one study used data from 1,001 teachers in 37 Head Start programs in Pennsylvania to examine whether workplace stress was associated with poorer quality teacher–child relationships. The findings revealed that increased workplace stress including high demands and few work-related resources was correlated with more conflict in teacher-child relationships (Whitaker, Dearth-Wesley, & Gooze, 2015). Overall, these findings underscore the need for early learning centers to provide adequate support and resources to teachers to handle daily stressors faced in their classrooms. This also suggests that workplace supports may interact with teachers' well-being to influence children's developmental outcomes.

Children's Behavioral Outcomes

When teachers do not have the professional or psychological supports needed to provide high-quality learning environments to children, this will ultimately influence children's developmental outcomes. In a study which examined the relationship between Head Start

teachers' depressive symptoms and children's social-emotional development, researchers found that children in classrooms with teachers who reported higher levels of depressive symptoms made significantly fewer gains in social-emotional skills (Roberts et al., 2016). Another study found that teacher-child conflict was related to teachers' perceptions of workplace stress and children's behavioral problems in the classroom (Mantzicopoulos, 2005). However, when teachers receive sufficient training in managing children's behavior, this may lead to more positive developmental outcomes for children. For example, an intervention program was implemented in Hong Kong which focused on supporting the social-emotional development of young children through improving social-emotional competence in teachers (Lam & Wong, 2017). The findings revealed significant improvement in children's social competence and decreased anxiety-withdrawal and aggressive behaviors post intervention. Another study found that teachers who participated in a certificate program focusing on young children's emotion and behavior regulation felt a greater sense of self-efficacy and were more sensitive in supporting children with behavioral challenges (Ritblatt, Hokoda, & Van Liew, 2017). Additionally, children exhibited fewer challenging behaviors and higher social skills. Thus, when teachers are adequately supported and have access to a wide range of resources in their educational centers, they are better equipped to provide high-quality learning environments, resulting in more positive developmental outcomes for children.

Head Start

Based on the literature review, it is clear that contextual aspects of children's development (early learning centers and teacher psychological well-being) influence each other and children's developmental outcomes, which supports Bronfenbrenner's model of human development. It was this model that informed the development of Head Start in 1965 (Phillips &

Styfco, 2007), a program funded by the United States Department of Health and Human Services whose aim is to promote school readiness skills in children from birth to five years of age from low-income families. Bronfenbrenner believed that all children of working parents should have access to high-quality, affordable care (Phillips & Styfco, 2007). Head Start programs throughout the country strive to support children's growth and development through a variety of free services including early learning, health, and family well-being (Child Care and Early Education Research Connections & United States Department of Health and Human Services, 2017), supporting the development of the "whole child" (U.S. Department of Health & Human Services, Early Childhood Knowledge & Learning Center, 2018). Many Head Start programs operate within centers and schools, and some provide prenatal services to pregnant women. Eligibility for enrollment in Head Start programs is dependent on family income, which for Head Start families is typically at or below the poverty level as outlined in the poverty guidelines by the federal government. Children who are homeless, in foster care, or from families receiving public assistance qualify for Head Start regardless of income (U.S. Department of Health & Human Services, Early Childhood Knowledge & Learning Center, 2018).

Head Start Conceptual Framework

The Head Start conceptual framework reflects Bronfenbrenner's bioecological model because it acknowledges children's growth and development across multiple contexts. In the Head Start framework, the child is at the center of the model and develops within a family that is part of a classroom within a Head Start program. The quality of teaching within the classroom is affected by factors within Head Start programs such as teacher and program characteristics, and these may be influenced by factors beyond Head Start, such as services, resources, and policies at the community, state, and national level. Thus, the systems in this model influence each other

and ultimately the child's development, just as they do in Bronfenbrenner's model. If Head Start programs are provided with sufficient resources and funding at the community, state, and national level, then this should allow programs to perform optimally and adequately support teachers, leading to positive child outcomes. The following section discusses Head Start policies and regulations which were created to ensure that teachers working in Head Start programs are uniformly and adequately trained and supported to promote positive learning experiences for children.

Head Start Policy and Regulations

Head Start has its own policies and regulations regarding how all staff should be supported professionally (Head Start Early Childhood Learning & Knowledge Center, 2018). These policies indicate that a program must ensure all staff have sufficient knowledge, training and experience, and competencies to successfully fulfill their job roles. On-going trainings must be provided regularly to help staff learn and develop skills to provide high-quality services. Additionally, Head Start programs are required to make health and wellness information available to staff regarding issues that may affect their job performance. Staff must also have opportunities to learn about mental health, wellness, and health education. Theoretically, if these policies and regulations are implemented across all Head Start programs, then teachers should feel that they are receiving both professional and social-emotional supports needed to successfully fulfill their job responsibilities. However, as previously discussed, research has shown that this is not always the case. Although Head Start is a federally funded program with uniform standards and goals, funding varies by state, and therefore the quality of programs is affected, impacting teachers' practice in the classroom. The next section explains effective

teaching practices which were designed to be followed by Head Start teachers to support children's development and growth.

Head Start Framework for Effective Practice

Head Start outlines effective teaching practices in a framework which is comprised of five elements (Head Start Early Childhood Learning & Knowledge Center, 2018). These include highly individualized teaching and learning, using screening and ongoing assessment of children's skills, implementing research-based curriculum and teaching practices, nurturing, responsive, effective interactions and engaging environments, and parent and family engagement. The first four elements connect to form a single structure which surrounds parents and family engagement in the middle. This study focused on the foundation of this framework which emphasizes the importance of nurturing, responsive, and effective interactions and engaging environments. This foundation for effective teaching practice for children ages birth to five includes a well-organized and managed learning environment. For example, teachers should arrange the classroom so that children can easily access materials from different areas, as well as establish daily classroom routines. Teachers should also provide social and emotional support to children, such as by acknowledging and accepting children's feelings while helping them understand and express their feelings in appropriate ways. Finally, intentional teaching practices, interactions, and materials which stimulate children's learning is a critical component in the foundation for effective teaching practice. This may include modeling and discussing pro-social behaviors so children can experience how these look and feel. Thus, children's learning is strongly influenced by interactions and environments which are responsive to their developmental needs.

The Head Start framework for effective teaching practice corresponds with the five early childhood learning domains. For preschoolers, these include approaches to learning, social and emotional development, language and literacy, math and scientific reasoning, and perceptual, motor, and physical development. The current study focused on the social and emotional development domain. The social and emotional development sub-domains of interest included preschoolers' relationships with adults, relationships with other children, and emotional functioning. Effective teaching practices should influence the social-emotional goals for preschoolers as outlined by Head Start, including engaging in and maintaining positive relationships and interactions with adults and children, engaging in cooperative play with other children, expressing a broad range of emotions and recognizing these in themselves and others, and managing their emotions with increasing independence (Head Start Early Childhood Learning & Knowledge Center, 2018). Taken together, program policies which support teachers' professional development will influence their teaching practices, which in turn will influence children's social-emotional development.

Head Start Family and Child Experiences Survey (FACES)

Although Head Start provides valuable services to low-income children and their families, policymakers and administrators need evidence of the benefits these services have on children's development as well as the quality of Head Start programs (McKey, 2003). The Head Start Family and Child Experiences Survey (FACES) was first launched in 1997 to provide descriptive, nationally representative data on the characteristics, experiences, and development of Head Start children and their families, as well as the characteristics of Head Start programs and staff (Child Care and Early Education Research Connections & United States Department of Health and Human Services, 2017). Between 1997 and 2009, there were five FACES cohorts

which included nationally representative samples of 3 and 4-year old children entering Head Start for the first time during the fall of that program year, as well as their families, teachers, classrooms, centers, and programs. Children included in the samples were from Head Start programs and centers across all 50 states. The Head Start Family Child and Experiences Survey (FACES) 2014, the sixth in the series, was redesigned with updated assessment tools and measures and features a "Core Plus" study design. The "Core" study included regular, ongoing data collection of specific indicators at the program, classroom, and child/family level, while the "Plus" studies included special topics and allowed FACES to respond flexibly to new policy issues and questions in a timely manner (Child Care and Early Education Research Connections & United States Department of Health and Human Services, 2017). Data collection measures included direct and indirect assessments of children and teachers as well as surveys administered to parents, teachers, and other Head Start staff.

Purpose, Goals, and Research Questions

Previous Research

Previous research conducted by Flores, Elbaum and Seag (2018) used data from the 2009 Head Start Family and Child Experiences Survey (FACES) dataset to examine the relationship between teacher well-being and children's behavioral outcomes. FACES 2009 (Child Care and Early Education Research Connections & United States Department of Health and Human Services, 2018) was a longitudinal study which collected data on children enrolled in Head Start and their families. The data collected included direct child assessments, self-report of parenting practices, and parent and teacher observations/reports of children. The sample included 3,349 children in 486 classrooms and 60 different programs. Up to two classrooms per program and ten children per classroom were selected for the study. This study utilized data from FACES 2009 to

answer the following research questions: 1) What is the prevalence of teachers who report symptoms of depression on the CES-D Short Form Measure; 2) Is there a difference in teachers' reporting about behavior problems for young children across race; and 3) Is there a relationship between teachers' experiences of depression and children's behavioral outcomes? In this study, teacher well-being was defined as teachers' depression. Teacher depression was assessed using scores on the CES-D (Center for Epidemiologic Studies Depression) Short Form, a scale with twelve items that provides information on respondents' levels of depressive symptoms through the Teacher Interview. Variables used for analysis included constructed variables, one of which provided a composite score of teachers' feelings self-reported on a Likert scale through the Spring 2010 Teacher Interview. Constructed or derived variables are those which combine responses from more than one survey item or wave of data (Child Care and Early Education Research Connections & United States Department of Health and Human Services, 2017). The other constructed variables used were provided by the Teacher Child Report from the spring of 2010 and included teachers' responses to questions on their perceptions of children's behavioral problems such as disruptiveness/aggression, hyperactivity, and total behavior problems. Preliminary analyses of the data revealed a high rate of teachers reporting some level of depressive symptoms (30.8%) as well as a significant correlation between teachers' depressive symptoms and children's behavioral outcomes including disruptive/aggressive behavior, hyperactivity, and total behavior problems. It is important to note that the data was unweighted and therefore not representative of the total Head Start population. The purpose of the current study was to build upon this research by examining the influence of workplace environment on teacher well-being and children's behavioral outcomes, which is discussed in further detail in the next section.

The Current Study: Head Start Family and Child Experiences Survey (FACES) 2014

In addition to investigating the relationship between teacher psychological well-being and children's behavioral outcomes, this study assessed the impact of workplace environment. Using Bronfenbrenner's bioecological model and the Head Start conceptual framework to contextualize the multiple influences of children's development, this study answered the following research questions: 1) What is the prevalence of teachers reporting symptoms of depression on the CES-D Short Form measure across gender; 2) Is there a relationship between early childhood program supports and teachers' reporting of depressive symptoms; 3) What is the relationship between program supports, teacher well-being, and children's behavioral outcomes; and 4) What is the relationship between teacher well-being, classroom environment, and children's behavioral outcomes? Based on findings from the previous study which examined the relationship between teacher well-being and children's behavioral outcomes (Flores, Elbaum & Seag, 2018), it was hypothesized that teachers' access to program supports and their reporting of depressive symptoms would be correlated with children's behavioral outcomes. The relationship between teachers' psychological well-being and classroom environment was also expected to influence children's behavioral outcomes. Additionally, it was hypothesized that program supports would impact teacher well-being.

Method

Data Source

Data from the 2014 Head Start Family and Child Experiences Survey (FACES), the sixth in a series of national studies of Head Start, was used to examine the relationship between teacher well-being and children's behavioral outcomes. The Head Start Family and Child

Experiences Survey (FACES) measures Head Start performance at the national level and includes nationally representative samples of Head Start programs and classrooms, as well as the children and families enrolled in Head Start. The surveys of Head Start program and center directors, classroom teachers, and parents provide descriptive data about program policies and practices, classroom activities, and background information and experiences of Head Start staff and families. FACES 2014 utilized a new design that differs from previous rounds of FACES in the following ways: 1) the study included much larger program and classroom samples; 2) all data were collected in a single program year rather than following newly enrolled children for one or two years of Head Start and then through the spring of kindergarten; 3) the baseline sample of children included both those enrolled in their first and second year of Head Start; and 4) several special studies were conducted in addition to the main or core study to obtain more detailed information about certain topics, to study new populations of Head Start programs and participants, and to assess measures for potential use in future FACES studies (Child Care and Early Education Research Connections & United States Department of Health and Human Services, 2017).

Participants

The 2014 FACES sample included 2,462 children, 597 teachers, and 322 center directors. Children, teachers, and center directors were sampled from 176 Head Start programs, 346 centers, and 667 classrooms. An average of two centers per program and two classrooms within each center were chosen to participate in the study. Twelve children from each classroom were randomly selected to participate in the study and yielded ten children with parental consent per classroom (Child Care and Early Education Research Connections & United States Department of Health and Human Services, 2017).

Measures

This study used data collected from the Teacher Website Survey, Teacher-Child Report, and Center Director Survey administered during the spring of 2015, as well as direct observations of classroom environment. The Teacher Child Report (TCR) was an indirect child assessment which asked teachers to provide information about children included in the study who were from the teachers' classes. Teachers were asked to report on children's development including their social skills, problem behaviors, and approaches to learning. The Center Director Survey was administered to Head Start center directors and asked them to provide information about staffing and recruitment, staff education and training, curriculum and assessment, program management, and the directors' background information.

Teachers and center directors were provided with instructions on how to complete both parts of the surveys online and were given 30 and 25 minutes to complete the surveys, respectively. These measures were used to conduct multiple linear regressions to analyze interactions between teacher depression and program supports and their effect on children's behavioral outcomes. Similar analyses were conducted to observe the effects of teacher depression and classroom climate on children's behavior.

Weights

A sampling weight was included in analyses in order to represent the larger Head Start population. The FACES 2014 data set includes 21 weights to be used with cross-sectional or longitudinal data. This study used a cross-sectional weight from the spring of 2015. The appropriate weight used for all variables is discussed in the data analysis plan.

Variables

Several variables provided by the Head Start FACES 2014 dataset were used to answer specific research questions. Some of these included constructed variables which combined responses across more than one survey item or wave of data rather than corresponding to a specific subscale or measure. An explanation of each variable is provided below as described in the user guide for the FACES 2014 dataset (Child Care and Early Education Research Connections & United States Department of Health and Human Services, 2017). A gender variable was included for teachers.

Teacher and Classroom Characteristics

Teacher Website Survey (TCR): The Teacher Website Survey collected self-reported information on teachers' backgrounds and classrooms, as well as their thoughts about teaching and the program where they were employed. Teachers' psychological well-being was defined in this study by teachers' depression scores as rated by the CES-D (Center for Epidemiologic Studies Depression) Short Form provided by the Teacher Website Survey. The continuous variable provided by the FACES 2014 dataset, T2DEPSCO, was constructed to describe Head Start teachers' depressive symptoms. Teachers' depression scores were calculated from their responses on 12 items of the CES-D Short Form (T2C01A through T2C01L) included in the section titled, "C. Your Feelings" of the Teacher Website Survey. The twelve items, which were rated as being experienced by teachers over the past week on a Likert Scale as rarely or never, some or a little, occasionally or moderately, most or all of the time, included the following: bothered by things that usually don't bother you, you did not feel like eating/your appetite was poor, you could not shake off blues even with help from friends or family, you had trouble keeping your mind on what you were doing, depressed, everything you did was an effort, fearful,

your sleep was restless, you talked less than usual, lonely, sad, and you could not get going. Scores ranged from 0 to 36, with higher scores indicating more depressive symptoms. Categories reflecting the degree and severity of teachers' depressive symptoms are identified in the composite categorical variable, T2DEPCAT. Values ranging from 0 to 4 of the categorical variable, T2DEPCAT, were categorized as "not depressed" (T2DEPCAT= 1); values of 5 to 9 were categorized as "mildly depressed" (T2DEPCAT= 2); values of 10 to 14 indicated "moderately depressed" (T2DEPCAT= 3), and values of 15 or higher were categorized as "severely depressed" (T2DEPCAT= 4) (Child Care and Early Education Research Connections & United States Department of Health and Human Services, 2017). See Table 1 for a list of the teacher depression variables.

Classroom Assessment Scoring System (CLASS): Although teachers provide valuable information about children's behavior, it is also important to conduct observations that objectively assess the nature of the interactions between teachers and the children in their care as well as the learning environments teachers are providing. Therefore, in addition to teacher well-being and indirect assessments of children's behavior, this study also analyzed the impact of classroom environment on children's behavioral outcomes. The Classroom Assessment Scoring System (CLASS) was used in FACES 2014 to measure classroom quality in terms of both instructional and social-emotional aspects of the environment. The Pre-K CLASS contains items which assess ten dimensions of teaching and classroom quality that are grouped into three areas which include emotional support, classroom organization, and instructional support. A seven point scale was used ranging from 1 (minimally characteristic) to 7 (highly characteristic) to rate each domain during all four observation cycles. CLASS observers spent three to four hours in each sampled classroom during the spring of 2015 in order to observe classes during a significant

portion of their daily schedule and a variety of classroom activities. Each observation was conducted in areas of the classroom where children and teachers were not as active and observers limited their interactions with children so as not to disrupt the daily routine of the class (Child Care and Early Education Research Connections & United States Department of Health and Human Services, 2017).

The CLASS variables used in this study included the CLASS Emotional Support Score, the CLASS Negative Climate Score, and the CLASS Positive Climate Score (see Table 1). The CLASS Emotional Support Score (O2CLSSES) was constructed by taking the mean of the four subscale scores from the Emotional Support scale which included classroom positive and negative climate, the amount of teacher sensitivity, and teachers' regard for student perspectives, with scores ranging from 1 to 7. The CLASS Negative Climate Score (O2CLSSNC) was constructed by taking the mean of four negative climate scores which measured the level of anger, hostility, and aggression exhibited by teachers or students in the classroom, with scores ranging from 1 to 7. The four items which comprise this variable are copyrighted and therefore were not provided by the FACES 2014 data set. The CLASS Positive Climate Score (O2CLSSPC) composite measures the degree of emotional connection, respect, and enjoyment demonstrated by teachers and students in the classroom, with scores ranging from 1 to 7. As with the CLASS negative climate items, the four items which were used to construct the CLASS positive climate composite variable are copyrighted and were not provided by the FACES 2014 data set.

Workplace Environment

Teacher Reported Program Support: Workplace environment was defined in this study by teachers' reporting of access to different program supports. This information was provided by

the Teacher Website Survey from spring 2015 in which Head Start teachers answered questions about their classrooms, background, and thoughts about teaching and the program they worked in. Teachers were also asked about their center's workplace climate, professional development, teaching, family engagement, and program leadership. This study focused on workplace environment variables included in the mentoring and professional development component of the Teacher Website Survey in section A25A which asked teachers about professional development opportunities provided to them by their Head Start programs. The following nine teacher-level variables were used in this study which described items that answered the question, "Programs can support teachers' professional development in a lot of different ways. Does your program offer the following to teachers?": 1) regular meetings with supervisors to talk with them about their work and progress (T2A25A01); 2) support/funding to attend regional, state, or national early childhood conferences (T2A25A02); 3) paid preparation/planning time (T2A25A03); 4) mentoring/coaching (T2A25A04); 5) workshops/trainings sponsored by the program (T2A25A05); 6) support/funding to attend workshops/trainings provided by other organizations (T2A25A06); 7) visits to other classrooms or centers (T2A25A07); 8) a community of learners, also called a professional learning community, facilitated by an expert (T2A25A08); and 9) incentives such as gift cards to encourage teachers to participate in professional development activities (T2A25A09). Teachers were asked to mark "yes" or "no" to each of these questions (see Table 2 for a list of variables).

In order to assess whether center directors perceived teachers as having access to supports provided by Head Start programs, in addition to teachers' reporting of professional development supports, this study also used center director reported program supports in analyses. These items are listed in Table 3 and included the following: 1) regular meetings with teachers to

talk with them about their work and progress (C2B03G01); 2) support/funding to attend regional, state, or national early childhood conferences (C2B03G02); 3) paid preparation/planning time (C2B03G03); 4) mentoring/coaching (C2B03G04); 5) workshops/trainings sponsored by the program (C2B03G05); 6) support/funding to attend workshops/trainings provided by other organizations (C2B03G06); 7) visits to other classrooms or centers (C2B03G07); 8) a community of learners, also called a professional learning community, facilitated by an expert (C2B03G08); and 9) incentives such as gift cards to encourage teachers to participate in professional development activities (C2B03G09).

Child Behavioral Outcomes

Unlike previous versions of the Head Start Family and Child Experiences Survey (FACES), FACES 2014 did not include direct measurements of children's social-emotional functioning; therefore, the current study used indirect assessment variables to examine children's behavioral outcomes. Through the Teacher Child Report, teachers rated each child on a set of items which assessed children's accomplishments, cooperative classroom behaviors, problem behaviors, and approaches to learning. This study defined children's behavioral outcomes as their problem behaviors and cooperative behaviors reported by teachers.

Problem behaviors. Children's problem behaviors included disruptive/aggressive, hyperactive, and withdrawn behaviors rated by teachers in section D of the Teacher Child Report which asked teachers about children's classroom conduct. This section used a scale which ranged from one to three that asked teachers to rate fourteen items as not true, somewhat true, or very true. Items in the problem behaviors scale were taken from an abbreviated version of the Personal Maturity Scale (Entwisle, Alexander, Pallas, & Cadigan, 1987) and the Behavior Problems Index (BPI; Peterson & Zill, 1986). The Personal Maturity Scale includes 13 items

which measure children's behavior using three specific subscales: participation, cooperation or compliance, and attention span or restlessness with alpha reliabilities ranging from 0.74 to 0.85 (Child Care and Early Education Research Connections & United States Department of Health and Human Services, 2017). The BPI includes children's undercontrolling behaviors, such as hyperactivity, aggression, and destructiveness as well as overcontrolling behaviors, such as social withdrawal, depression, and somatic problems. A composite score derived from the FACES 2014 scale's fourteen behavior items indicating total behavior problems was used for data analyses in this study. This composite total behavior score was constructed by taking the mean of fourteen items in section D of the Teacher Child Report and multiplying the mean by 14. FACES 2006 and 2009 demonstrated high internal consistency reliability (alpha) coefficients of the total behavior problems summary score, which ranged from 0.82 to 0.88 (Child Care and Early Education Research Connections & United States Department of Health and Human Services, 2017).

Cooperative behaviors. Cooperative behavior was assessed by teachers' responses to twelve items on the Teacher Child Report from the spring of 2015. Teachers were asked how often a child demonstrated cooperative behaviors such as following directions, helping put things away, complimenting peers, and following rules when playing a game using a scale ranging from one ("never") to three ("very often"). The items used to rate children's cooperative behavior were taken from the Personal Maturity Scale and the Social Skills Rating System (SSRS; Gresham & Elliott, 1990) and were included in section C of the Teacher Child Report titled, "Social Skills." A composite score was constructed by taking the mean of the twelve items and multiplying it by 12, with high numbers reflecting more frequent cooperative behaviors. However, because FACES 2014 used a social rating scale adapted from the Social Skills Rating

System (SSRS; Gresham & Elliot, 1990) which included copyrighted items, all twelve items were not provided by the FACES 2014 data set. FACES 2006 and 2009 demonstrated high internal consistency reliability (alpha) coefficients of the total cooperative behavior score, which ranged from 0.88 to 0.89 (Child Care and Early Education Research Connections & United States Department of Health and Human Services, 2017).

This study used two composite behavior variables shown in Table 4: teacher reported social skills scores (RnSSRS) and teacher reported behavior problems: total score (RnBPROB2). The total reported social skills score (RnSSRS) is a sum score of the items used to rate children's cooperative behaviors in the classroom, such as following the teacher's directions, helping put things away, complimenting classmates, and following rules when playing games. Teachers were asked to indicate how likely a child was to engage in these behaviors on a scale from 0 ("never") to 2 ("very often), with scores ranging from 0 to 24. Higher scores reflected better social skills exhibited by children.

The second child behavior variable used for analysis reflecting total behavior problems reported by teachers (RnBPROB2) included sums of scores of items from the abbreviated version of the Personal Maturity Scale and the Behavior Problems Index, with total scores ranging from 0 to 28. Higher scores reflected more behavior problems exhibited by children. These items asked teachers to indicate the extent to which a child engaged in a range of behaviors such as aggressive, hyperactive, and anxious or depressed and withdrawn behavior. For example, teachers were asked how often a child engaged in anxious or depressed and withdrawn behavior including, "keeps to herself or himself," "is nervous, high strung, or tense," "often seems unhappy, sad, or depressed," "worries about things for a long time," and "lacks confidence in trying new things or new activities." Teachers were also asked to report on

children's disruptive/aggressive behavior such as "hits/fights with others," "disobeys rules or requests," and "disrupts ongoing activities." Teacher reported hyperactive behavior included "can't concentrate, can't pay attention for long," "is very restless, fidgets all the time, can't sit still," and "is distracted too easily by what is going on in the room." Teachers reported each of these behaviors as being exhibited by children on a scale of 0 ("not true") to 2 ("very true or often true") (Child Care and Early Education Research Connections & United States Department of Health and Human Services, 2017).

Analysis Overview

The data analyses conducted for this study were completed using the PASW 18 complex survey module. Because analyses of data provided by the FACES 2014 requires procedures suitable for complex, multistage, clustered designs with unequal selection probabilities, the user guide suggests that researchers use statistical software packages (such as SAS or Stata) which include a design-based variance estimation approach. Utilizing standard procedures provided by software packages for analyses would not generate accurate standard errors or variances because they assume that data has been collected from a simple random sample design rather than the complex sample design of the FACES data set. Therefore, complex survey procedures using the PASW 18 complex module software were used and included the Taylor Series approach which accounts for design-based variance estimation. These procedures allowed for generation of proper standard errors of weighted data. Regression analyses conducted in this study required specification of the weight and design variables, including the first-stage sampling strata (STRAT) and the primary sampling units (PSU) for analyses performed using child-level data. The user guide instructs researchers to use the variables "STRAT_C" and "PSU_C" when

conducting analyses at the classroom, teacher, or center levels to adjust for programs that were selected with certainty (Child Care and Early Education Research Connections & United States Department of Health and Human Services, p. 201).

Merging the data. In order to run analyses for this study, it was necessary to merge the data files provided by the Head Start FACES 2014 data set. The FACES 2014 Core data set provides the following three data files: 1) center/program file (spring 2015 only) containing identifiers which link data to other Core data files, program and analysis weights, constructed/derived variables from the center director survey, composite scores from classroom observations at the program level, and program and center director survey item-level data; 2) classroom/teacher file (spring 2015 only) containing identifiers linking data to other Core data files, class and teacher analysis weights, all classroom/teacher composite/derived variables, and teacher survey item-level data; and 3) child-level file (fall 2014 and spring 2015) containing identifiers linking the data to other Core data files, child-level analysis weights, direct and indirect child assessment scores, and constructed/derived variables created for parent and teacher surveys, classroom observations, and center director surveys. The child-level file does not include item-level data from spring 2015 Core instruments that are provided by the teacher and center level files. Since this study focused on child, teacher, and center level data, the center/program file and child-level file were merged because they contained identifiers for each variable of interest (the classroom/teacher file did not contain any child level information). Each data file contains an identification number to be used for merging files. The center identifier, C2_ID, is a five digit number identifying the Head Start center each child attended and is included in the child-level, classroom/teacher, and center/program data files. To merge the center/program data with the child data, C2_ID in the child-level data file was merged with the

primary identifier, C2_ID, in the center/program data file (Child Care and Early Education Research Connections & United States Department of Health and Human Services, p. 178).

Sampling weights. The FACES 2014 data set provides 21 weights to be used at the cross-sectional or longitudinal level. These weights were created to adjust for variations in the probability of selection as well as for eligibility and cooperation rates of programs selected to participate in FACES 2014. The probability of selection was calculated for each stage of sampling including the program, center, classroom, and child. The most appropriate weight determined for use in this study was the spring 2015 cross-sectional center-level weight (C_WT) which was provided to be used for analysis of data from participating Head Start centers and included characteristics of classrooms and children in those centers (Child Care and Early Education Research Connections & United States Department of Health and Human Services, p. 188).

Research Question One: *What is the prevalence of teachers reporting symptoms of depression on the CES-D Short Form measure across gender?*

Using the categorical variables for teacher depression (T2DEPCAT) and teacher gender (T2D19), a crosstab frequency was conducted comparing male and female teachers' responses on the CES-D Short Form categorizing the severity of their depressive symptoms as, "not depressed," "mildly depressed," "moderately depressed," and "severely depressed." Unweighted estimates are provided. A description of both gender and teacher depression variables are provided in Table 1.

Research Question Two: *Is there a relationship between early childhood program supports and teachers' reporting of depressive symptoms?*

To assess the impact of program supports on teacher well-being, it is important to understand what kinds of support Head Start centers are providing to their teachers. Therefore, Spearman correlations were run to assess the relationship between the types of professional development supports teachers reported having access to on the spring 2015 Teacher Website Survey and the categorical variable for Teacher Depression (T2EPCAT) rated by the CES-D Short Form on the Teacher Web Survey during the spring of 2015. Crosstab correlations were run between the categorical variable for teacher depression (T2DEPCAT) and the following teacher website survey variables regarding professional development opportunities offered by Head Start programs: regular meetings with supervisors to talk with them about their work and progress (T2A25A01), support/funding to attend regional, state, or national early childhood conferences (T2A25A02), paid preparation/planning time (T2A25A03), mentoring/coaching (T2A25A04), workshops/trainings sponsored by the program (T2A25A05), support/funding to attend workshops/trainings provided by other organizations (T2A25A06), visits to other classrooms or centers (T2A25A07), a community of learners, also called a professional learning community, facilitated by an expert (T2A25A08), and incentives such as gift cards to encourage teachers to participate in professional development activities (T2A25A09). Additional Spearman correlations were run between the same program supports listed on the Center Director Survey from the spring of 2015 to examine any differences between what supports center directors and teachers reported their programs offered. Tables 2 and 3 list each of these variables at the teacher and center level, respectively.

Research Question Three: *What is the relationship between program supports, teacher well-being, and children's behavioral outcomes?*

In addition to analyzing the relationship between program supports and teacher depression, this study also investigated the impact of these variables on children's behavioral outcomes. The child behavior outcome variables used in this study provided indirect assessments of children's behavior as rated by their teachers in the Teacher Child Report. Using indirect child behavior variables is valuable because teachers will be highly knowledgeable about the behavior of the children they work with on a daily basis. The behavioral outcome variables used in this study included teacher reported social skills scores (RnSSRS) and teacher reported total behavior problems (RnBPROB2). A multiple regression linear model was conducted to analyze if child behavior outcomes could be predicted by teacher depression scores and one of the program supports which was shown to significantly correlate with other professional development supports; the variable chosen was mentoring/coaching. The first model reflected teacher reported social skills (RnSSRS) as predicted by the categorical variable for teacher depression (T2DEPCAT) and mentoring/coaching (T2A25A04):

Outcome Variable (Y_i): *Social Skills*

Predictor Variable: *Teacher depression (x_1), mentoring/coaching (x_2)*

$$Y_i = b_0 + b_1X_{1i} + b_2X_{2i} + \varepsilon_i$$

$$\textit{Social Skills} = \textit{Intercept} + b_1(\textit{Teacher depression}) + b_2(\textit{mentoring/coaching}) + \textit{random error}$$

The second regression model included teacher reported total behavior problems (RnBPROB2) as predicted by teacher depression and center-level support through mentoring/coaching:

Outcome Variable (Y_i): *Total behavior problems*

Predictor Variable: *Teacher depression (x_1), mentoring/coaching (x_2)*

$$Y_i = b_0 + b_1X_{1i} + b_2X_{2i} + \varepsilon_i$$

Total behavior problems = Intercept + b_1(Teacher depression) + b_2(mentoring/coaching) + random error

Because the Spearman correlations conducted between professional development supports listed in the Center Director Survey showed that mentoring/coaching was significantly related to the provision of other supports, two additional linear regression models were conducted. These models included a center-level variable for mentoring/coaching (C2B03G04) as a predictor of child behavior outcomes to observe if there were inconsistencies between center directors and teachers in their reporting of teachers having access to this support.

Research Question Four: *What is the relationship between teacher depression, classroom environment, and children's behavioral outcomes?*

Classroom Environment. In addition to indirect child assessment variables, it is also important to include a direct assessment variable which provides objective and reliable information on different aspects of the classroom emotional environment as impacted by both teachers and children. This measure may provide a fuller understanding of the possible bidirectionality of teacher well-being and child behavior. The classroom environment variables used in this study provided information from direct observations of the social-emotional and instructional climate of sampled classrooms. The following three continuous constructed variables describing classroom environment quality based on the Classroom Assessment Scoring System (CLASS) were used for analysis: 1. CLASS Emotional Support Score (O2CLSSES), 2. CLASS Negative Climate Score (O2CLSSNC), and 3. CLASS Positive Climate Score

(O2CLSSPC). Several Pearson correlation coefficients were calculated to analyze the relationship between CLASS scores and the continuous variable for teacher depression (T2DEPSCO) rated by the CES-D Short Form on the Teacher Web Survey from the spring of 2015.

Child behavior outcomes. The composite variables reflecting children's behaviors used for analysis included teacher reported social skills score (RnSSRS) and total behavior problems score (RnBPROB2). Additionally, several multiple linear regressions were conducted to analyze if children's behavioral outcomes could be predicted by CLASS scores and teachers' depression score (T2DEPSCO). The first three regression models were conducted to analyze the effect of teacher depression and three measures of CLASS scores including CLASS Emotional Support Score (O2CLSSES), CLASS Negative Climate Score (O2CLSSNC), and CLASS Positive Climate Score (O2CLSSPC) on teacher reported social skills (RnSRSS). The following three models were run:

$$Y_i = b_0 + b_1X_{1i} + b_2X_{2i} + \varepsilon_i$$

Social skills= Intercept + b_1(Teacher depression) +b_2(CLASS Emotional Support) + random error

$$Y_i = b_0 + b_1X_{1i} + b_2X_{2i} + \varepsilon_i$$

Social skills= Intercept + b_1(Teacher depression) +b_2(CLASS Negative Climate) + random error

$$Y_i = b_0 + b_1X_{1i} + b_2X_{2i} + \varepsilon_i$$

Social skills= Intercept + b_1(Teacher depression) +b_2(CLASS Positive Climate) + random error

Three additional regression models were run to examine the effect of teacher depression and the three CLASS score variables on teacher reported total child behavior problems (RnBPROB2):

$$Y_i = b_0 + b_1X_{1i} + b_2X_{2i} + \varepsilon_i$$

Total behavior problems= Intercept + b_1(Teacher depression) +b_2(CLASS Emotional Support) + random error

Total behavior problems= Intercept + b_1(Teacher depression) +b_2(CLASS Negative Climate) + random error

$$Y_i = b_0 + b_1X_{1i} + b_2X_{2i} + \varepsilon_i$$

Total behavior problems= Intercept + b_1(Teacher depression) +b_2(CLASS Positive Climate) + random error

Results

Teacher Depression and Gender

In order to assess the relationship between teacher depression and gender, a crosstab frequency was run to examine the depressive symptoms of the 313 teachers who answered the CES-D Short Form. Results showed that 3.2% (n= 9) of teachers were male and 96.8% (n=304) were female. 67.6% of men who answered the short form were not depressed, while 7.7% were mildly depressed, 24.6% were moderately depressed, and none experienced severe depressive symptoms. Most women (66%) reported that they did not experience any severe depressive symptoms. 22.5% of women reported being mildly depressed, 8.6% reported being moderately depressed, and 2.9% experienced severe depressive symptoms. Although most teachers reported that they were not depressed through the CES-D Short Form, a high percentage of both male (32.3%) and female (34%) teachers reported experiencing some level of depression, though very few men answered the survey compared to women. These results are reflected in Table 5.

Program Supports and Teacher Depression

As shown in Table 6, Spearman correlations did not reveal any significant associations between teacher depression scores and any of the workplace supports teachers reported having access to. However, there were significant positive correlations between all program supports. For example, teachers who reported that their programs offered professional development in the form of mentoring or coaching were also likely to report that their programs offered the following: regular meetings with supervisors (r (530)= .332, $p < .001$); support or funding to attend early childhood conferences (r (458)= .248, $p < .001$); paid preparation/planning time (r (512)= .216, $p < .001$); program workshops or trainings (r (531)= .139, $p = .001$); support to attend other workshops or trainings (r (474)= .296, $p < .001$); visits to other classrooms (r (494)= .313, $p < .001$); professional development through a professional learning community (r (431)= .342, $p < .001$); and incentives for participating in professional development activities (r (469)= .208, $p < .001$).

Spearman correlations which assessed center directors' reporting about the professional development supports offered by their program indicated on the Center Director Survey from spring 2015 revealed similar results to the correlations between teacher reported program supports. For example, no significant correlations were found between teachers' depression scores and program supports. Significant positive correlations were found between center directors' reporting of professional development in the form of mentoring or coaching and regular meetings with teachers (r (320)= .287, $p < .001$), support or funding for teachers to attend early childhood conferences (r (320)= .182, $p = .001$), paid preparation/planning time (r (318)= .151, $p < .01$), and program workshops or trainings (r (320)= .239, $p < .001$) (see Table 7.1). Additionally, significant positive correlations were found for center directors who indicated that

their programs offered professional development through a professional learning community and other types of opportunities such as workshops and trainings offered by other organizations (r (317)= .124, $p < .05$), visits to other classrooms or centers (r (315)= .210, $p < .001$), and incentives to encourage teachers to participate in professional development activities (r (316)= .152, $p < .01$) (see Table 7.2). Incentives were also strongly correlated with visits to other centers or classrooms (r (317)= .147, $p < .01$) and other types of professional development support (r (270)= .222, $p < .001$) (see Table 7.2). Furthermore, teachers' ability to visit other centers or classrooms was strongly related to opportunities to attend workshops and trainings provided by other organizations (r (318)= .248, $p < .001$), reflected in Table 7.2.

Although the results demonstrated significant relationships between several of the workplace support variables specified by center directors and all supports indicated by teachers, it is important to note that these were all weakly associated with one another. Nevertheless, these results suggest that when teachers have access to one type of professional development support, they are likely to receive other kinds of supports. Furthermore, the significant relationships found between teachers' access to multiple supports may buffer against their depressive symptoms, as demonstrated by the non-significant correlations between teacher depression and program supports.

The Relationship Between Program Supports, Teacher Depression, and Child Behavior

Descriptive statistics showed that 71.2% of teachers reported they were not depressed, and 76.5% reported having access to mentoring/coaching (weighted n= 1903.68) The mean teacher-reported total behavior problems score was 3.95 (scores ranged from 0 to 28) and 17 for teacher reported social skills, with scores ranging from 0 to 24. These results indicate that overall, teachers reported that children exhibited few total behavior problems and scored high in

social skills. Spearman correlations that were conducted between program supports and teacher depression scores in question two revealed that professional development offered in the form of mentoring/coaching was significantly associated with the likelihood of teachers receiving many other kinds of supports. Therefore, this was the teacher-level variable included in the linear regression model analyzing the effect of teacher depression and program support on children's behavior outcomes. Results of these models revealed a non-significant effect of teacher depression and teachers' reporting of having access to mentoring/coaching both on children's total behavior problems (b= .57, Wald F(44)= 1.68, $p > .05$) (see Table 8) and teacher-reported social skills (b= -.56, Wald F(44)= 2.11, $p > .05$), reflected in Table 9. These findings suggest that teachers' depressive symptoms and having access to mentoring/coaching did not affect their perception of children's cooperative or problem behaviors. It is worthy to note that the regression model revealed that the relationship between teacher depression and teacher-reported total behavior problems approached significance (b= .18, Wald F(44)= 3.83, p = .057) as shown in Table 8. This finding suggests that teachers' depressive symptoms may be related to their perceptions of children's total behavior problems, which included a wide range of behaviors. Future studies should look more closely at children's behavior outcomes as impacted by teacher depression alone; further analysis may reveal that the categories of teachers' depressive symptoms (mild, moderate, or severe) are associated with their perceptions of specific problem behaviors exhibited by children.

Interestingly, the results of the regressions run with the center-level mentoring/coaching support variable showed a significant effect of teacher depression and center director reported mentoring/coaching on children's total behavior problems (b= 4.76, Wald F(44)= 7.26, $p < .01$) as reflected in Table 10. The mean total behavior problems score was 3.46 (scores ranged from 0

to 28). This finding suggests that in general, when teachers have access to mentoring or coaching and experience fewer depressive symptoms, they are more likely to report experiencing fewer total behavior problems from children in their classrooms. There was also a significant interaction between teacher depression and mentoring/coaching on teacher-reported social skills outcomes for children (b= -6.77, Wald F(44)= 20.28, $p < .001$) shown in Table 11. The weighted mean social skills score was 17.44 (scores ranged from 0 to 24). This finding suggests that when teachers have access to mentoring or coaching and experience fewer depressive symptoms, they are more likely to report that their students exhibit higher social skills. 93.4% of center directors reported that their programs provided mentoring/coaching to teachers, which is higher than the rate of teachers who reported having access to the same support (76.5%). Overall, these results show discrepancies between what professional development supports teachers reported having access to and what supports center directors believed teachers received from their programs.

Teacher Well-Being, Classroom Environment, and Children's Behavior

Pearson correlations were used to analyze the relationship between CLASS scores and teacher depression revealed a strong positive correlation between the CLASS Emotional Support Score and CLASS Positive Climate Score (r (639)= .876, $p < .001$), indicating a significant linear relationship between the two classroom observation variables (see Table 12). The higher the overall emotionally supportive climate of the classroom as rated by observers, the higher the positive climate marked by emotional connection, respect, and enjoyment exhibited by teachers and students tended to be. Conversely, a moderate negative correlation was found between the CLASS Emotional Support Score and CLASS Negative climate score (r (639)= -.480, $p < .001$), indicating that the higher Head Start classes scored in emotionally supportive climates, the less likely they were to score high in levels of anger, hostility, or aggression as exhibited by students

or teachers. Additionally, a moderate negative correlation was found between the CLASS Negative Climate score and the CLASS Positive Climate score (r (639)= -.355, $p < .001$), indicating that classes which scored higher in negative aspects of the social-emotional environment were less likely to exhibit a social-emotional climate characterized by high levels of emotional connection, respect, and enjoyment demonstrated by teachers or students.

The CLASS Emotional Support score did not significantly correlate with teacher depression scores (r (587)= -.023, $p > .05$), nor did the CLASS Negative Climate score (r (587)= .031, $p > .05$) or CLASS Positive Climate score (r (587)= -.023, $p > .05$). These results suggest that whether or not teachers experienced some level of depression, their symptoms (or lack thereof) did not impact the overall instructional or social-emotional quality of the classroom environment.

Analyses demonstrated that teacher depression and CLASS Emotional Support scores did not have a significant interaction effect on teacher reported social skills (b= .03,Wald F(47)= .01, $p > .05$) (see Table 13), nor did the interaction of teacher depression and CLASS Negative Climate scores (b= -.002, Wald F(47)= .000, $p > .05$) (see Table 14). Furthermore, teacher depression and CLASS Positive Climate Scores were not significantly associated with teacher reported social skills (b= .25, Wald F(47)= .78, $p > .05$) as reflected in Table 15.

The mean for teacher reported total child behavior problems was 3.79 (scores ranged from 0-28) and 3.71 for teacher depression based on the CES-D Short form (scores ranged from 0 to 36), indicating that on average teachers were not depressed and experienced few child behavior problems overall in their classrooms. Analyses revealed that the total number of behavior problems reported by teachers was not significantly associated with an interaction between teacher depression and CLASS Emotional Support scores (b= -.13, Wald F(47)= .19, p

> .05) as shown in Table 16, or teacher depression and CLASS Negative Climate scores (*b*= -.03, Wald F(47)= .01, *p* > .05) reflected in Table 17. However, a significant negative effect was found between teacher depression and CLASS Positive Climate scores (*b*= -.46, Wald F(47)= 4.46, *p* < .05) on total behavior problems reported by teachers, as reflected by Table 18. The mean CLASS Positive Climate score was 5.45 (scores ranged from 1 to 7). These results suggest that lower rates of teacher depression and higher positive climate scores are related to fewer total child behavior problems reported by teachers.

Overall, most of the multiple linear regression analyses for child behavior outcomes as predicted by teacher depression and classroom environment did not demonstrate significance, with the exception of CLASS Positive Climate scores and teacher depression which significantly influenced teacher reported total behavior problems.

Discussion

The purpose of the present study was to build upon previous research by Flores, Elbaum and Seag (2018) which found a high percentage of teachers reporting some level of depression and that their psychological well-being was significantly related to children's behavioral outcomes. Based on those findings, the hypothesis of the current study using the Head Start FACES 2014 data set was that early childhood program supports would play an important role in teachers' psychological well-being and impact children's behavior outcomes. Most of the results of this study did not support this hypothesis. Teachers' access to program supports was not significantly related to their depressive symptoms. However, there were significant relationships found from several of the multiple linear regression models and Spearman and Pearson correlations. An interesting finding was that each of the program supports provided to teachers were significantly related to one another, indicating that teachers were very likely to have access

to multiple supports. These significant correlations were not related to teachers' depression scores. A possible reason for this might be that when teachers have access to several supports, this may act as a buffer against more severe depressive symptoms.

Another important finding of this study was that based on the regression models conducted, center directors' reporting of teachers' access to mentoring or coaching seemed to significantly interact with lower teacher depression scores and influence better child outcomes, including lower teacher reported total behavior problem scores and higher social skills scores. However, when the same regression models were conducted to include the teacher-level variable for mentoring/coaching, results were non-significant. Furthermore, a higher percentage of center directors reported that their programs offer mentoring/coaching to teachers than the percentage of teachers who reported having access to this support.

Lastly, the interaction between teacher depression and CLASS Positive Climate score yielded a negative significant relationship with children's overall behavior problems, suggesting that lower rates of teacher depression and higher positive climate scores are related to fewer total child behavior problems reported by teachers. This result was not found for teacher reported social skills, which may be due to the fact that the total behavior problem score included a wide range of behaviors.

Although many of the hypotheses were not supported, the results of this study nevertheless suggest that early childhood development is affected by contextual factors, where children are influenced by aspects of their classroom environment which is influenced by the educational center itself. Therefore, these findings provide further evidence for Bronfenbrenner's bioecological model of development and the interconnectedness of workplace environment, teacher well-being, and children's behavior outcomes. Teachers are an important aspect of this

model, and while it remains unclear what factors are associated with teachers' depressive symptoms, results demonstrated that their access to workplace support in conjunction with their psychological well-being influenced more positive outcomes for children. Furthermore, results of this study have implications for policies which early childcare employers may seek to implement regarding early childhood educators' psychological well-being and professional development requirements. Although most teachers reported that they did not experience any depressive symptoms, a high rate still seemed to experience some level of symptoms (32.3% among men and 34% among women). Therefore, employers and training programs should prioritize early childhood educator well-being to ensure both positive work environments for teachers and high-quality care to children. Programs should continue to focus on providing mentoring and coaching to teachers, since this support did influence children's positive behavior outcomes and seemed to provide a buffer against teacher depression. Programs should also ensure that the supports they claim to provide are actually being provided to teachers within their centers, since results showed discrepancies between what supports center directors and teachers reported were available. This is particularly important within Head Start, which is not equally funded across states and may result in programs that do not necessarily provide the high-quality services outlined in Head Start policies and regulations.

Limitations and Future Research

Further research is needed to examine the relationship between workplace environment, teacher well-being, and children's academic outcomes. Additionally, although utilizing a large dataset allowed for generalizability to the Head Start population, the research questions presented in this study were created based on the variables provided in the dataset, so more specific topics of interest could not be investigated. Future rounds of FACES should include

more measures of teacher well-being, including those which consider their experiences of stress and anxiety, which may correlate differently with aspects of the workplace environment and children's behavioral outcomes. Additionally, future studies should assess how the different categories of teacher depression as rated by the CES-D Short Form (mild, moderate, or severe) correlate with specific behavioral outcomes for children. This study did not examine the relationship between each of the depression categories included in the teacher depression score and each of the problem behaviors which comprised the total child behavior problems score. Another limitation of this study is that it is not possible to determine the directionality of teacher well-being and children's behavioral outcomes. For example, it is difficult to tell if teachers' psychological well-being influenced children's behavioral outcomes and classroom environment, or if children's behaviors influenced teacher well-being and the social-emotional quality of the classroom. Lastly, although this study utilized direct observational variables, no direct assessment outcome variables were provided for children regarding their social-emotional functioning. All behavioral outcomes were provided through the Teacher Child Report, which creates the potential for bias in reporting about specific children. Future rounds of FACES should include direct assessment variables which focus on children's social-emotional functioning.

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Table 1. Teacher Characteristics

Variable Name in Data File	**Item**	**Range**
T2D19	What is your gender; from Teacher Website Survey	N/A
T2DEPSCO (continuous)	Teacher Depression Score (CES-D) Short Form; from Teacher Website Survey	0-36; higher scores represent more depressive symptoms
T2DEPCAT (categorical)	Teacher Depression Score (CES-D) Short Form; from Teacher Website Survey	1. Not depressed: 0-4 2. Mildly depressed: 5-9 3. Moderately depressed: 10-14 4. Severely depressed: 15 or higher
O2CLSSES	CLASS Emotional Support Score; constructed variable	1-7; higher scores represent more aspects of emotional support
O2CLSSNC	CLASS Negative Climate Score; constructed variable	1-7; higher scores represent more aspects of negative social-emotional environment
O2CLSSPC	CLASS Positive Climate Score; constructed variable	1-7; higher scores represent more aspects of positive social-emotional environment

Table 2. Teacher-Level Variables of Program Supports Provided

Variable Name in Data File	**Item**	**Method of Collection**
T2A25A01	Regular meetings with supervisors to talk about their work and progress	Teacher Website Survey, Spring 2015
T2A25A02	Support/funding to attend regional, state, or national early childhood conferences	Teacher Website Survey, Spring 2015
T2A25A03	Paid preparation/planning time	Teacher Website Survey, Spring 2015
T2A25A04	Mentoring/coaching	Teacher Website Survey, Spring 2015
T2A25A05	Workshops/trainings sponsored by program	Teacher Website Survey, Spring 2015,
T2A25A06	Support/funding to attend workshops/ trainings provided by other organizations	Teacher Website Survey, Spring 2015
T2A25A07	Visits to other classrooms or centers	Teacher Website Survey, Spring 2015
T2A25A08	A community of learners (professional learning community) facilitated by expert	Teacher Website Survey, Spring 2015
T2A25A09	Incentives (i.e.; gift cards) to encourage teachers to participate in professional development activities	Teacher Website Survey, Spring 2015

Table 3: Center-level variables of supports provided to teachers – Center Director Survey, Spring 2015

Variable Name in Data File	**Item**	**Method of Collection**
C2B03G01	Regular meetings with teachers to talk about their work and progress	Center Director Survey, Spring 2015
C2B03G02	Support/funding to attend regional, state, or national early childhood conferences	Center Director Survey, Spring 2015
C2B03G03	Paid preparation/planning time	Center Director Survey, Spring 2015
C2B03G04	Mentoring/coaching	Center Director Survey, Spring 2015
C2B03G05	Workshops/trainings sponsored by program	Center Director Survey, Spring 2015
C2B03G06	Support/funding to attend workshops/ trainings provided by other organizations	Center Director Survey, Spring 2015
C2B03G07	Visits to other classrooms or centers	Center Director Survey, Spring 2015
C2B03G08	A community of learners (professional learning community) facilitated by expert	Center Director Survey, Spring 2015
C2B03G09	Incentives (i.e.; gift cards) to encourage teachers to participate in professional development activities	Center Director Survey, Spring 2015

Table 4. Teacher-Reported Child Behavior Outcomes

Variable Name in Data File	**Measure**	**Range**	**Method of Collection**
RnSSRS	Social Skills Rating System	0-24; higher scores represent better Social skills	Teacher Child Report, Spring 2015
RnBPROB2	Total behavior problems; (composite of items from Personal Maturity Scale and Behavior Problems Index)	0-28; higher scores represent more behavior problems	Teacher Child Report, Spring 2015

Table 5. Teacher depression severity and gender

Teacher Depression Score (CES-D Short Form Categories)	Male	Female
1. Not depressed (n= 210)	67.6% (n= 5)	66% (n= 205)
2. Mildly depressed (n=65)	7.7% (n= 1)	22.5% (n=64)
3. Moderately depressed (n= 30)	24.6% (n= 3)	8.6% (n= 27)
4. Severely depressed (n= 8)	0% (n= 0)	2.9% (n= 8)
Total (n= 313)	3.2% (n= 9)	96.8% (n= 304)

Table 6. Correlations between teacher reported workplace supports and teacher depression

	1	2	3	4	5	6	7	8	9	10
1. Teacher depression	-									
2. Supervisor meetings	.044	-								
3. Support for conferences	.055	.269**	-							
4. Paid prep time	-.031	.153**	.325**	-						
5. Mentoring/coaching	.039	.332**	.248**	.216**	-					
6. Workshops/trainings	.002	.116**	.256**	.236**	.139**	-				
7. Other workshops	.077	.194**	.621**	.227**	.296**	.342**	-			
8. Classrooms/centers	.019	.263**	.310**	.311**	.313**	.192**	.313**	-		
9. Learning community	-.014	.237**	.445**	.280**	.342**	.185**	.409**	.407**	-	
10. Incentives	.040	.142**	.224**	.170**	.208**	.114*	.182**	.318**	.307**	-

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table 7.1 Spearman correlations of center-reported program supports and teacher depression

	1	2	3	4	5	6
1. Teacher depression	-					
2. Teacher meetings	-.011	-				
3. Support for conferences	.052	.233**	-			
4. Paid prep time	.072	-.064	.186**	-		
5. Mentoring/coaching	-.103	.287**	.182**	.151**	-	
6. Workshops/trainings	.081	.102	.038	.050	.239**	-

**. Correlation is significant at the 0.01 level (2-tailed).

Table 7.2 Spearman correlations of center-reported program supports and teacher depression

	1	2	3	4	5	6
1. Teacher depression	-					
2. Other workshops	.017	-				
3. Classrooms/centers	-.014	.248**	-			
4. Learning community	.050	.124*	.210**	-		
5. Incentives	.073	.107	.147**	.152**	-	
6. Other PD	.116	.027	-.016	.095	.222**	-

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table 8. Total behavior problems predicted by teacher reported mentoring/coaching and teacher depression scores

Variable	*B*	*SE B*	95% CI	Wald F	*p*
Teacher Depression	0.18	0.19	[-0.20, 0.56]	3.83	.057
Mentoring/coaching	-0.12	0.62	[-3.52, 3.50]	0.00	.995
Teacher Depression x Mentoring/coaching	0.57	0.44	[-0.32, 1.46]	1.68	.201

* Significant at the $p < 0.05$ level.

Table 9. Social skills predicted by teacher reported mentoring/coaching and teacher depression scores

Variable	*B*	*SE B*	95% CI	Wald F	*p*
Teacher Depression	-0.10	0.18	[-0.47, 0.27]	3.42	.071
Mentoring/coaching	-0.45	1.73	[-3.94, 3.04]	0.07	.798
Teacher Depression x Mentoring/coaching	-0.56	0.38	[-1.33, 0.22]	2.11	.154

* Significant at the $p < 0.05$ level.

Table 10. Total behavior problems predicted by center director reported mentoring/coaching and teacher depression scores

Variable	*B*	*SE B*	95% CI	Wald F	*p*
Teacher Depression	-5.93	4.56	[-0.12, 18.25]	6.84	.001*
Mentoring/coaching	2.53	1.00	[-4.55, -0.52]	3.49	.068
Teacher Depression x Mentoring/coaching	4.76	1.43	[1.87, 7.64]	7.26	.002*

* Significant at the $p < 0.01$ level.

Table 11. Social skills predicted by center director reported mentoring/coaching and teacher depression scores

Variable	*B*	*SE B*	95% CI	Wald F	*p*
Teacher Depression	3.91	4.28	[-4.70, 12.52]	8.89	.000*
Mentoring/coaching	7.68	0.62	[6.42, 8.93]	98.16	.000*
Teacher Depression x Mentoring/coaching	-6.77	1.06	[-8.90, -4.64]	20.68	.000*

* Significant at the $p < 0.001$ level.

Table 12. Pearson correlations among CLASS and teacher depression scores

Measure	1	2	3	4
1. Teacher Depression Score	-			
2. Emotional Support Score	-.023	-		
3. Negative Climate Score	.031	-.480**	-	
4. Positive Climate Score	-.023	.876**	-.355**	-

**. Correlation is significant at the 0.01 level (2-tailed).

Table 13. Social skills predicted by CLASS Emotional Support scores and Teacher Depression scores

Variable	*B*	*SE B*	95% CI	Wald F	*p*
Teacher Depression	-0.38	2.05	[-4.50, 3.74]	0.03	.854
Emotional Support	0.80	2.02	[-3.27, 4.87]	0.16	.693
Teacher Depression x Emotional Support	0.03	0.37	[-0.72, 0.78]	0.01	.934

* Significant at the $p < 0.05$ level.

Table 14. Social skills predicted by CLASS Negative Climate scores and Teacher Depression scores

Variable	*B*	*SE B*	95% CI	Wald F	*p*
Teacher Depression	-0.211	0.44	[-1.12, 0.68]	0.23	.638
Negative Climate	-0.790	1.94	[-4.69, 3.12]	0.17	.685
Teacher Depression x Negative Climate	-0.002	0.34	[-0.68, 0.68]	0.00	.995

* Significant at the $p < 0.05$ level.

Table 15. Social skills predicted by CLASS Positive Climate scores and Teacher Depression scores

Variable	*B*	*SE B*	95% CI	Wald F	*p*
Teacher Depression	-1.60	1.60	[-4.81, 1.61]	1.01	.321
Positive Climate	-0.69	1.45	[-3.61, 2.22]	0.23	.635
Teacher Depression x Positive Climate	0.25	0.29	[-0.33, 0.83]	0.78	.382

* Significant at the $p < 0.05$ level.

Table 16. Total behavior problems predicted by CLASS Emotional Support scores and Teacher Depression scores

Variable	*B*	*SE B*	95% CI	Wald F	*p*
Teacher Depression	0.87	1.64	[-2.43, 4.17]	0.28	.598
Emotional Support	0.38	1.42	[-2.47, 3.24]	0.07	.789
Teacher Depression x Emotional Support	-0.13	0.30	[-0.74, 0.47]	0.19	.662

* Significant at the $p < 0.05$ level.

Table 17. Total behavior problems predicted by CLASS Negative Climate scores and Teacher Depression scores

Variable	*B*	*SE B*	95% CI	Wald F	*p*
Teacher Depression	0.18	0.48	[-0.79, 1.14]	0.14	.714
Negative Climate	0.51	1.46	[-2.43, 3.45]	0.12	.728
Teacher Depression x Negative Climate	-0.03	0.36	[-0.76, 0.69]	0.01	.924

* Significant at the $p < 0.05$ level.

Table 18. Total behavior problems predicted by CLASS Positive Climate scores and Teacher Depression scores

Variable	*B*	*SE B*	95% CI	Wald F	*p*
Teacher Depression	2.67	1.30	[0.06, 5.29]	4.24	.045*
Positive Climate	1.56	1.07	[-0.60, 3.72]	2.12	.153
Teacher Depression x Positive Climate	-0.46	0.22	[-0.89, -0.02]	4.46	.040*

* Significant at the $p < 0.05$ level.