MINDFULNESS AND WORK-RELATED FUNCTIONING AMONG HEAD START STAFF

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by
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ABSTRACT

The quality of human service delivery, in the fields of social welfare, health, and education, is influenced by the quality of the interpersonal relationships between the service provider and the client. Achieving programmatic outcomes in human services requires high-quality social interactions. Early childhood education is a human service delivery model in which workplace functioning requires intensive human interaction. The quality of the social interactions among staff members and between staff and clients (children and their families) is a key factor in how successful these programs are in achieving their goals. Head Start, the nation's largest publicly-funded early childhood education program, is based on a service model that provides educational, social, and health services through center-based classrooms and/or home visits to low-income children, from gestation through 5 years of age. Despite the importance of interpersonal relationships in Head Start achieving its programmatic goals, little is known about what factors are associated with high levels of functioning as it pertains the interpersonal relationships among staff in Head Start. This dissertation examines the association between dispositional mindfulness and work-related functioning outcomes designed to capture dimensions of or characteristics that promote high interpersonal relationship quality in three distinct Head Start staff types. The implications of the findings for Head Start and other human service delivery models are discussed.

For Elizabeth, John and Lily

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CHAPTER 1

INTRODUCTION

Head Start, which is the largest federally-funded early childhood education program in the US, has a primary goal of promoting the school readiness of low-income children. Although Head Start is a system of early childhood education, it can be thought of more broadly as a human service program for low-income children, between birth and 5 years of age, and their parents. This is reflected in the fact that Head Start is administered by the US Department of Health and Human Services, not the US Department of Education. In addition to education, Head Start delivers comprehensive services related to health, nutrition, social welfare ("Head Start Programs", 2016).

Including Early Head Start, which serves children from birth to 36 months of age ("About Early Head Start", n.d.), Head Start reaches nearly one million low-income children and their families and employs over 200,000 staff, the vast majority of whom are women ("Head Start Program Facts Fiscal Year 2015", n.d.). Head Start approaches the goal of school readiness in a holistic manner, targeting not only academic skills such as literacy and arithmetic, but also children's social, emotional and physical well-being. Given its' population level reach, Head Start and Early Head Start programs have the opportunity to make systematic changes in the lives of many low-income children and their families while providing an opportunity for low-income children to alter their life-course trajectory. Like most human services organizations, for Head Start to achieve its' intended outcomes it does so through the relationships between its' staff and clients (Figure 1), such as between teachers and children in the classroom or between home-based visitors and parents in the home. One mechanism by which programmatic goals

can be achieved is by improving the quality of these relationships. For home-based visitors, this would be reflected in more productive interactions and relationships with parents, supporting parents in their roles as primary caregivers. For classroom teachers, relationships with the children in their classroom characterized by more closeness and less conflict may be beneficial to creating a more effective learning environment. Managers who demonstrate capacities of effective leadership may demonstrate better emotion regulation which would allow them to react calmly and demonstrate stronger interpersonal skills with staff, children and families (Figure 1).

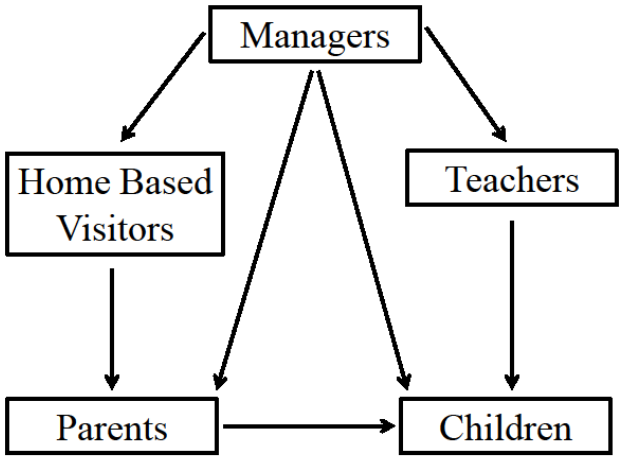

Figure 1. Outline Of Basic Organization Hierarchy And Relationships In Head Start Programs. The solid arrows show the directionality of the relationship among staff and the clients with whom they interact. The proposed research does not evaluate the factors associated with parent-child relationship quality.

A potential mechanism for improving the quality of these relationships is to promote mindfulness among all Head Start staff. Mindfulness has been linked to better relationship quality through improved interpersonal communication and the ability to be present with others in distress (Bihari & Mullan, 2014; Brown & Kasser, 2005). Mindfulness is defined by Kabat-Zinn (2003) as “the awareness that emerges through

paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment to moment" (p.145). Individuals who are mindful tend to exhibit steady attention and are able to notice and accept thoughts, feelings and physical stimuli (Khanna & Greeson, 2013), leading to improved self-regulation and less reactive responses (Shapiro, Carlson, Astin, & Freedman, 2006). Mindfulness involves greater awareness of one's own bodily sensations, thoughts, and emotions. These characteristics may lead to more productive interactions between human service providers and clients as a result of better regulation of both attention and emotion during interactions (Hölzel et al., 2011).

Head Start staff who work with socially disadvantaged children and families have inherently stressful jobs. Children served by Head Start programming typically experience difficult social circumstances, such as homelessness, living in single-parent households, and having parents with limited income, education, and literacy (Aikens et al., 2010; Bradley & Corwyn, 2002; Brooks-Gunn & Duncan, 1997). Additionally, Head Start staff work for low pay in programs that are held accountable for achieving measurable programmatic outcomes ("Head Start Program Performance Standards", n.d.). Interactions rooted in attention and emotion regulation may result in more compassionate and empathetic response to clients' difficulties, and a better understanding of their goals (Snyder, Shapiro, & Treleaven, 2012). Mindfulness may help human service professionals, such as Head Start staff, approach stressful situations with more awareness, acceptance and emotion regulation. Being aware and accepting of emotions in self and others when appraising stressful situations may help staff respond to these situations with calm intentionality and therefore react more deliberately in stressful circumstances. For

example, mindfulness-based stress reduction interventions have demonstrated consistent improvements in burnout, stress, anxiety, depression and empathy in health care workers (Lamothe, Rondeau, Malboeuf-Hurtubise, Duval, & Sultan, 2016). Health care workers, like Head start staff, must often meet the emotional needs of people in distress (Poulin, Mackenzie, Soloway, & Karayolas, 2008).

Despite the potential of mindfulness practices to increase different dimensions of work functioning among early childhood educators, there have been no population-based studies to examine the association between mindfulness and work-related functioning among early childhood education staff. This dissertation will make use of data from a statewide survey of Pennsylvania Head Start staff in varying work roles (managers, teachers, and home-based visitors) to determine whether higher levels of dispositional mindfulness are associated with higher levels of work functioning as it pertains to interpersonal relationships. Head Start staff who have higher quality relationships with the clients they serve or demonstrate characteristics favorable to productive interpersonal interactions with others may be more effective in achieving Head Start's overall goal of child social emotional competence and school readiness.

Data Source

The proposed research is a secondary data analysis of the Pennsylvania Head Start Staff Wellness Survey (SWS). The SWS was fielded by Robert C. Whitaker, MD, MPH from February to July 2012 and was an anonymous, voluntary, one-time web-based survey of staff working in Pennsylvania's Head Start and Early Head Start programs. These data were collected as part of a needs assessment to identify potential targets for interventions that might increase both staff wellness and children's school readiness. The

Pennsylvania Head Start Association, a non-profit advocacy organization for the state's Head Start and Early Head Start programs and families, helped recruit programs to participate in the survey.

The SWS data collection procedures have been detailed elsewhere (Whitaker, Becker, Herman, & Gooze, 2013), and are briefly described below. The director of each participating program was responsible for inviting all staff members in his or her program to complete the survey, either at or away from work. Dr. Whitaker's research team provided program directors with printed materials to announce and describe the survey, directions to reach the survey website, and periodic updates on the response rates of all programs. Dr. Whitaker's research team made no other contact with program staff and offered no monetary incentives to individual staff members to participate in the survey. Although no individual incentives to complete the survey were offered, programs with a final response rate of at least 75% were invited to participate in a raffle in which the program could receive one of six gift cards ranging in value from $100 to $250.

Overall Goals of the Pennsylvania Head Start Staff Wellness Survey

The SWS was designed to: 1) describe the health and well-being of the staff and 2) to determine how the health and well-being of the staff was related to their functioning at work. The survey was undertaken with the long-term goal of increasing school readiness for children in Head Start by improving the health and well-being of the staff. It contained questions in the following five domains:

1) Stress: perceived stress at work and outside of work, as well as adverse childhood experiences

2) Health: physical health conditions, health behaviors, and health-related quality of life indicators
3) Well-being: psychological well-being, depressive symptoms and dispositional mindfulness
4) Functioning: functioning in work roles, including the quality of relationships with children and families and work-related self-efficacy
5) Sociodemographic factors: characteristics such as age, gender, race/ethnicity, primary language, living situation, education level, and economic stressors

The Proposed Dissertation Research

The proposed research will use a subset of the data collected in the SWS to evaluate the association between dispositional mindfulness and work-related functioning measures designed to capture components of and characteristics that influence interpersonal relationship quality. The key hypotheses under study will be evaluated in three distinct groups of Head Start staff; home-based visitors, classroom teachers and managers. The main goal of testing these hypotheses is to understand whether a more mindful disposition may positively impact interpersonal relationship quality and work-related functioning, and to explain theoretically plausible mechanisms by which these associations may exist. The main outcome, mediating and moderating variables evaluated in each paper are listed by staff type in Table 1.

Although the data presented in this research are cross-sectional, the studies presented in the three groups of Head Start staff seek to isolate and describe the strength of the main effect of dispositional mindfulness on work-related functioning, analogous to a randomized control trial. Explaining all of the variation in each of the main outcome

Table 1. Outcome, Mediating And Moderating Variables Evaluated In Each Head Start Staff Group

Head Start Staff Type	Outcome Variable	Mediating Variable	Moderating Variable
Home-Based Visitors	Working Alliance Inventory, Short Form for home visitors	Environmental Mastery, Autonomy and Positive Relations Subscales of Ryff's scales of Psychological Well-Being	None
Classroom Teachers	Student–Teacher Relationship Scale short form	Center for Epidemiologic Studies Depression Scale	Job Content Questionnaire (workplace stress)
Managers	Efficacy for Management subscale from the Principal Self-Efficacy Scale	None	None

variables listed in Table 1 is beyond the scope of this work. In the spirit of this type of scientific inquiry, the analysis approach and treatment of covariates across the three studies will be similar to the methodology used in a randomized control trial, where the goal is to describe the effect of the main intervention variable on the outcome after accounting for the influence of covariates that may confound this association. The key hypotheses are listed below by staff type.

Home-Based Visitors

1. Higher levels of dispositional mindfulness among home visitors will be associated with a stronger working alliance between home visitors and parents and this association will be mediated by greater psychological well-being in the home visitors.

Classroom Teachers

1. Greater dispositional mindfulness will be associated with less conflict and more closeness in teachers' relationships with children.
2. The association between greater dispositional mindfulness and higher quality teacher-children relationships will be mediated, in part, by lower levels of teacher depressive symptoms.
3. The association between dispositional mindfulness and teacher-children relationships may be moderated by workplace stress, whereby the association between dispositional mindfulness and teacher-children relationships will be weaker in settings where teachers perceive higher levels of workplace stress.

Managers

1. Higher levels of dispositional mindfulness will be associated with higher levels of management self-efficacy.

Summary

The proposed research seeks to provide population based evidence for a positive association between dispositional mindfulness and work-related functioning among early childhood education staff. Head Start as a service delivery model is an example of a human service organization where understanding how dispositional mindfulness may be associated with higher work-related functioning could have implications for practice and future research. Empirical evidence of such a link can be used to justify randomized control trials of mindfulness-based interventions among early childhood education staff. The proceeding three chapters addresses the key hypotheses listed above by staff type.

CHAPTER 2

MINDFULNESS AMONG HOME VISITORS IN HEAD START AND THE QUALITY OF THEIR WORKING ALLIANCE WITH PARENTS

Abstract

The effectiveness of home-visiting programs in improving children's health, developmental, and educational outcomes may depend, in part, on the quality of the relationships between home visitors and parents, one aspect of which is their working alliance (shared bonds, goals, and tasks). However, little is understood about what modifiable factors are associated with a stronger working alliance. The purpose of this study was to determine if home visitors with higher levels of dispositional mindfulness reported a stronger working alliance with parents and whether this association was mediated by greater psychological well-being in the home visitor. In the spring of 2012, an anonymous, web-based survey was administered in 50 Head Start and Early Head Start programs in Pennsylvania. Responses were received from 307 of 418 (73.4%) home visitors. Home visitors reported on dispositional mindfulness (Cognitive and Affective Mindfulness Scale-Revised), psychological well-being, and their working alliance with parents (modified Working Alliance Inventory, Short Form). After controlling for confounders, a 1 SD higher mindfulness score among home visitors was associated with a 0.26 SD higher score on their working alliance with parents ($p<0.001$). This association was mediated by visitors' positive psychological well-being (indirect effect= 0.12, 95% confidence interval [0.08, 0.21]). Among home visitors in Head Start and Early Head Start, those who had higher levels of mindfulness reported a stronger working alliance with parents. Interventions to promote mindfulness among home visitors may be one

approach to strengthening their working alliance with parents and the effectiveness of home-visiting services.

Introduction

Home visiting is a service delivery model designed to improve children's health, developmental, and educational outcomes (Duggan et al., 2013). Home visiting programs vary in their approach, but all seek to provide family supports that are designed to improve the home environment and children's relationships with their caregivers (Boller, Strong, & Daro, 2010). This goal is achieved through interactions between the parent, usually the mother, and a home visitor. The home visitor provides direct services and also makes referrals to other social, health, and educational services. Home visiting programs utilize a variety of service delivery models designed to target an assortment of early childhood outcomes (Filene, Kaminski, Valle, & Cachat, 2013; Diane Paulsell, Avellar, Sama Martin, & Del Grosso, 2011).

One example of a service delivery model is the home visitation administered within the context of Head Start, the largest federally funded early childhood education program in the United States (U.S.). The primary goal of Head Start programming is to increase school readiness for U.S. children living in poverty. To address this goal, home visiting is part of service delivery, predominately in Early Head Start, which serves pregnant women and infants and toddlers under three years of age. Early Head Start home visiting is one of the 17 service delivery models meeting Home Visiting Evidence of Effectiveness (HomVee) standards ("Home Visiting Evidence of Effectiveness: Early Head Start-Home Visiting", n.d.). In this model, there are weekly home visits, lasting approximately 90 minutes, with the main goal of supporting parents in their roles as

primary caregivers and facilitating the child's optimal development within the home environment ("Implementing Early Head Start-Home Visiting", n.d.). The model includes a comprehensive group of services to address children's development and education as well as their medical, dental and mental health. It involves creating family partnerships, goal setting, and building community collaborations to meet any additional family needs. Home-based visitors within Early Head Start Programs serve as a primary liaison between families and services necessary for the health and well-being of children and their primary caregiver(s) ("Components of the Early Head Start Home-Based Model", n.d.).

The $1.5 billion federal investment in improving and expanding home visiting programs in the U.S. under the Affordable Care Act (Adirim & Supplee, 2013) has increased interest in identifying which components of these programs contribute most to achieving desired outcomes (Filene et al., 2013). One factor that may contribute to variation in desired outcomes is the quality of the relationships between the home visitor and the parent (Elicker, Wen, Kwon, & Sprague, 2013). The National Home Visiting Research Network noted that the quality of services provided is an important precursor to program outcomes (Duggan et al., 2013), and a key component of service quality is the quality of the relationship between home visitors and parents (Daro, 2010; Paulsell, Boller, Hallgren, & Esposito, 2010). A high quality relationship between the home visitor and parent is needed for the parent to take actions that support children's health and development (Emde, 1988), and the quality of the home visitor-parent relationship is considered a key component of parental engagement in home visiting (Korfmacher, Green, Spellmann, & Thornburg, 2007; Korfmacher et al., 2008).

Santos (2005) argued that a high quality home visitor-parent relationship should reflect the components of Bordin's (1979) model of the working alliance in therapeutic relationships, characterized by a strong bond between home visitor and parent plus shared views about the goals of home visiting. In this model counseling outcomes are facilitated through a relationship in which the therapist and client share a set of bonds, goals, and tasks. The model describes the need to establish a bond between therapist and client through trust, acceptance, and confidence; mutually endorsed and valued goals of the intervention; and mutually perceived relevance and effectiveness of the tasks targeted in the intervention

Although the working alliance between the home visitor and the parent does not assess all aspects the home visitor-parent relationship, Santos (2005) and others (Paulsell et al., 2010) have argued that the home visitor-parent working alliance is a key process measure that may influence child outcomes in home-visiting programs. A stronger home visitor-parent working alliance could improve service quality and fidelity, whereby home visitors who achieve a stronger alliance with parents may have greater success in delivering services that align with the home visiting model's prescribed content and dosage. A stronger home visitor-parent working alliance may also lead to greater parent engagement by making parents more receptive to the services provided by the home visitor. Improvements in service delivery and receptivity to those services could both lead to improved child outcomes. A concrete example from home visiting in Early Head Start is supporting the parent practice of reading aloud to the child, which addresses school readiness, one of the targeted outcomes of Early Head Start home visiting services. A strong alliance between the home visitor and parent would be reflected in the home

visitor and parent sharing the goal of increasing the child's language skills, sustained attention, and school readiness, which would, in turn, result in the parent acting on the suggestion of the home visitor to spend time reading aloud to the child.

Despite interest in achieving a strong working alliance between home visitors and parents, little is known about what modifiable factors are associated with a stronger working alliance. One modifiable factor may be the disposition or tendency of the home visitor to be mindful. Mindfulness is defined by Kabat-Zinn (2003) as "the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment to moment" (p.145). Individuals who are mindful tend to exhibit steady attention and are able to notice and accept thoughts, feelings and physical stimuli (Khanna & Greeson, 2013), leading to improved self-regulation and less reactive responses (Shapiro et al., 2006). Mindfulness has been linked to better relationship quality through improved interpersonal communication and the ability to be present with others in distress (Bihari & Mullan, 2014; Brown & Kasser, 2005). Higher levels of mindfulness in home visitors may improve the quality of their working alliance with parents by allowing home visitors to be more aware and accepting of parents' experiences, perspectives, emotions, and aspirations (Siegel, 2007), and, thereby, convey to parents a sense of empathetic concern (Bihari & Mullan, 2014; Block-Lerner, Adair, Plumb, Rhatigan, & Orsillo, 2007). Mindfulness involves greater awareness of one's own bodily sensations, thoughts, and emotions during interpersonal interactions. For home visitors, this could result in better regulation of both attention and emotion during home visits (Hölzel et al., 2011), which can lead to a stronger bond in

relationships with the parents, a more compassionate and empathetic response to parents' difficulties, and a better understanding of parents' goals (Snyder et al., 2012)

In developing a conceptual model of home-visiting service delivery and outcomes, the National Home Visiting Research Network identified the psychological well-being of the home visitor as one key factor in the successful implementation of home-visiting services (Duggan et al., 2013, p. S84). A mindful disposition in the home visitor may strengthen the home visitor-parent working alliance by improving the psychological well-being of the home visitor. It has been shown, for example, that those who are more mindful report feelings of greater autonomy, more positive relations, and greater competence or mastery (Brown & Ryan, 2003), which are three characteristics of eudaimonic well-being as described by Ryff (1989). These same characteristics of autonomy, relatedness, and competence are described in Self-Determination Theory as basic psychological needs, which when met, enhance intrinsic motivation and lead to well-being (Ryan & Deci, 2000). Regardless of whether these three characteristics are considered determinants or measures of well-being (Ryan & Deci, 2001), they may be more common in home visitors who are more mindful and explain, in part, how mindfulness is associated with a stronger working alliance with parents (Deci & Ryan, 2012).

Establishing the association between dispositional mindfulness among home visitors and the strength of their working alliance with parents could provide evidence for developing mindfulness-based interventions designed to increase dispositional mindfulness among home visitors. There is experimental evidence suggesting that interventions to increase mindfulness can improve health and functioning (de Vibe,

Bjørndal, Tipton, Hammerstrøm, & Kowalski, 2012) and do so through neurobiological mechanisms (Hölzel et al., 2011). There is also increasing evidence that mindfulness-based interventions can reduce stress and burnout in a variety of human-service professions, such as teaching, health care, and social work (Irving, Dobkin, & Park, 2009; Meiklejohn et al., 2012). Improving workplace functioning, including the quality of provider-client relationship, is an implicit goal of such interventions.

Strengthening the home visitor-parent working alliance, one component of the home visitor-parent relationship, could ultimately improve child outcomes in home visiting programs by increasing the quality and fidelity of home visiting services and the receptiveness of parents to those services. However, little is known about what modifiable factors influence the home visitor-parent working alliance, and there has been no study that examines the association between mindfulness of home visitors and their working alliance with parents. Using data from a population-based survey of home visitors working in Pennsylvania's Head Start and Early Head programs, we tested the hypothesis that higher levels of dispositional mindfulness among home visitors was associated with a stronger working alliance between home visitors and parents and that this association was mediated by greater psychological well-being in the home visitors.

Method

Participants

A total of 307 home visitors across 50 Head Start and Early Head Start programs in Pennsylvania were included in the present study. Nearly all participants were female (98.7%; *n*=301), over half were married (54.1%; *n*=164), and almost three quarters reported having obtained a bachelor's degree or education beyond a bachelor's degree

(71.9%; *n*=220; Table 2). The prevalence of economic hardship among the home visitors ranged from 3.9% for household food insufficiency to 32.3% for not having enough money to pay utility bills. The number of home visitors responding to the survey in each of the 50 programs ranged from 1 to 26 with a median of 5. Although one fourth of the home visitors had children who attended Head Start (Table 2), the home visitors were more often of White race than the children they served and were more educated than the parents of these children. Complete participant characteristics are presented in Table 2.

Procedure

In the spring of 2012, all Head Start and Early Head Start programs in Pennsylvania were invited to participate in the Pennsylvania Head Start Staff Wellness Survey, an anonymous, web-based survey of staff working in the state's Head Start and Early Head Start programs. The survey protocol, which was approved by Temple University's Institutional Review Board, has been previously described (Whitaker et al., 2013) and is briefly summarized below.

At the time of the survey, there were 91 Head Start and Early Head Start programs in Pennsylvania. Sixty-four of these programs provided home-visiting services, and 50 (78.1%) of these programs agreed to participate in the survey—22 of 28 Head Start programs and 28 of 36 Early Head Start programs. The survey was developed and hosted by Qualtrics online survey software (Qualtrics, 2011) The research team provided to each program director the location of the online survey along with materials to announce the survey.

Table 2 Home-Visitor Characteristics (N=307)

Characteristic	*n* (%)
Sex	
Male	4 (1.3)
Female	301 (98.7)
Age, y	
18-29	68 (22.5)
30-39	88 (29.1)
40-49	77 (25.5)
≥50	69 (22.8)
Non-Hispanic White	
Yes	252 (82.9)
No	52 (17.1)
Education	
High school or GED	34 (11.1)
Associate's degree	52 (17.0)
Bachelor's degree or higher	220 (71.9)
Relationship status	
Married	164 (54.1)
Cohabitating	40 (13.2)
Other	99 (32.7)
Not enough money for utilities	
Yes	99 (32.3)
No	208 (67.8)
Not enough money for healthcare	
Yes	82 (26.7)
No	225 (73.3)
Not enough money for housing	
Yes	27 (8.8)
No	280 (91.2)
Received SNAP	
Yes	22 (7.2)
No	285 (92.8)
Household food insufficiency	
Yes	12 (3.9)
No	295 (96.1)
Own child attended Head Start	
Yes	78 (25.8)
No	224 (74.2)
Attended Head Start as a child	
Yes	24 (7.9)
No	281 (92.1)
Program type	
Head Start	95 (30.9)
Early Head Start	212 (69.1)
Work experience in ECE, y	
0-3	77 (25.6)
4-10	109 (36.2)
11-20	78 (25.9)
>20	37 (12.3)

Notes: Across levels of a characteristic, the percentages may not add to 100.0% due to rounding. The number of participants does not add to 307 where there are missing data on the characteristic. SNAP, Supplemental Nutrition Assistance Program (formerly the Food Stamp Program)

The program director was then responsible for inviting all members of the program's staff (including part-time staff) to complete the survey at home or at work during the 4 months it was available online. To encourage programs to achieve a high survey response rate, weekly program-level response rates were sent to program directors. Programs that achieved a final response rate of at least 75% were invited to participate in a raffle in which the program could receive one of six gift cards ranging from $100 to $250. Of the 418 home visitors in the 50 participating programs, 312 (74.6%) completed the survey.

The Head Start Program Information Report (PIR), contains data, aggregated at the program level, describing characteristics of each program and the children and families it serves (US Department of Health and Human Services, 2011). Based on analysis of the PIR for the 50 programs participating in the survey, the number of home visitors in each program ranged from 1 to 41 with a median of 6. Program enrollment ranged from 46 to 456 for the 28 Early Head Start programs (median = 153) and ranged from 161 to 2157 for the 22 Head Start programs (median = 539). When data were further aggregated across all 50 programs, 18% of children served were Latino, 38% were non-White and 10% lived in households where the primary language spoken was not English. Fifty-four percent of the families were headed by a single parent, and in 24% of families neither parent/guardian had completed high school.

Measures

Dispositional Mindfulness

To assess dispositional mindfulness among the home visitors, we used the Cognitive and Affective Mindfulness Scale-Revised (CAMS-R)((Feldman, Hayes, Kumar, Greeson, & Laurenceau, 2007). The CAMS-R is a one-factor self-report measure

of the disposition or tendency to be mindful in daily life and assesses four components (attention, present-focus, awareness, and acceptance) that are shared across definitions of mindfulness (Baer, Walsh, & Lykins, 2009; Bishop et al., 2004; Kabat-Zinn, 2003). The 12-item scale contains three items for each component of mindfulness. Respondents were asked to assess how much each item (e.g., "It is easy for me to concentrate on what I am doing", "I am able to focus on the present moment", "I try to notice my thoughts without judging them", and "I can accept things I cannot change") applied to how they relate to their thoughts and feelings. Items were scored on a four-point Likert-type scale ranging from "Rarely/Not at all" to "Almost Always" and summed to create a total possible score ranging from 12-48, with higher scores indicating a more mindful disposition or tendency towards higher levels of non-judgmental attention and awareness in the present moment. The CAMS-R had high internal consistency in the current sample (α=0.86).

Quality of Working Alliance

To assess the strength of the working alliance between home visitors and the parents in their caseload, we used a modified version of the Working Alliance Inventory, Short Form for home visitors (WAI-S) (Santos 2005). Because our survey design did not allow us to ask home visitors about their working alliance with individual parents, we further modified the home-visitor version of the WAI-S (Santos, 2005) to ask home visitors about their working alliance with all parents in their current caseload rather than with an individual parent. Others in the field of home visiting have suggested Santos' (2005) version as an important dimension of the quality of the relationship between home visitors and individual parents (Daro, 2010; Koball, 2009; Paulsell et al., 2010).

Our modified version of home-visitor WAI-S asked home visitors to rate "statements that describe ways you think or feel about the *parents* you work with." Sample items included "The *parents* and I both feel confident about the usefulness of our current activity in home visiting", "The *parents* and I have built a mutual trust", and "The *parents* believe the way we are working toward their goals is correct". The 12-items were scored on a 7-point Likert type scale ranging from "Never" to "Always," with possible scores ranging from 12-84 and higher scores indicating a stronger working alliance between the home visitor and parents in their caseloads. Cronbach's alpha for our modified version of the home-visitor WAI-S in the current sample was α=0.87.

Psychological Well-Being

Psychological well-being was assessed using three subscales (environmental mastery, autonomy and positive relations) of Ryff's (1989) scales of Psychological Well-Being. For each of 9 items (e.g., "In general, I feel I am in charge of the situation in which I live", "I judge myself by what I think is important, not by the values of what others think is important", and "People would describe me as a giving person, willing to share my time with others") respondents indicated how strongly they agreed with each statement on a 7-point Likert-type scale ranging from "strongly disagree" to "strongly agree." Responses to the nine items were summed to create a psychological well-being score ranging from 9-63, with higher scores indicating higher levels of psychological well-being. Cronbach's alpha for the psychological well-being score in the current sample was α=0.63.

Covariates

We measured 14 characteristics of home visitors that we considered as potential confounders of the key relationships under study. To minimize concerns among respondents about deductive disclosure, these characteristics were all assessed in the survey using categorical measures. These variables included the following: sex, age, race/ethnicity, education, relationship status, whether the home visitor's own child had attended Head Start, whether the home visitor had attended Head Start as a child, program type in which the home visitor worked (Head Start vs. Early Head Start), and years of experience working in early childhood education. Additionally, participants were asked (yes/no) if they had experienced any of five economic hardships over the past year: 1) household food insufficiency, defined as "sometimes or often not having enough to eat"; 2) "received benefits from the Food Stamp Program or the Supplemental Nutrition Assistance Program"; 3) "did not have enough money to provide adequate shelter or housing for you and your family"; 4) "did not pay the full amount of the gas, oil or electricity bill" and 5) "did not have enough money to pay for health care and/or medicines that you or your family needed". We did not collect data on past training or practice in mindfulness meditation.

Data Analyses

Our analyses were restricted to 307 (of 312) home visitors who had complete data on the three key study variables (dispositional mindfulness, working alliance, and psychological well-being). The goal of our analysis was to determine if higher levels of dispositional mindfulness among home visitors was associated with a stronger home visitor-parent working alliance and whether this association, was mediated by the

psychological well-being of the home visitor. Statistical analyses were conducted using Stata/SE (v 12) (StataCorp, 2012).

To assist with the interpretation of our results, the continuous measures of mindfulness, working alliance, and psychological well-being were standardized as *z* scores. T-tests and one-way analysis of variance were then used to assess how the key independent (mindfulness *z*) and dependent (working alliance *z*) variables were related to each of the 14 categorical covariates that might potentially confound the relationship between mindfulness and working alliance.

Ordinary least squares regression was used to examine the relationship between mindfulness *z* and working alliance *z*. Missing covariate data in the analytic sample (n=307) was imputed iteratively using sequential regression multivariate imputation (Raghunathan, Lepkowski, Van Hoewyk, & Solenberger, 2001). This approach requires no assumption be made about the structure of the missing data, which was advantageous in the present study given the relatively small proportion of cases with any missing covariate data (n= 7). Our imputation model included all 14 home visitor characteristics listed above and the three main study variables (mindfulness, psychological well-being and working alliance). We did not include any cases in which the working alliance score was missing (Von Hippel, 2007). All reported model parameters were derived by aggregating results across 20 imputed datasets with complete data (Graham, Olchowski, & Gilreath, 2007). To account for shared variance at the program level, we used Taylor series linearization methods for all regressions (Heeringa, West, & Berglund, 2010). Model 1 examined the relationship between mindfulness *z* and working alliance *z* without adjustment for covariates. Only variables that were significantly related ($p<.20$) to our

independent (mindfulness *z*) and dependent (working alliance *z*) variables were considered potential confounders and were added to Model 2 (Mickey & Greenland, 1989). To determine whether program type modified the relationship between mindfulness *z* and working alliance *z*, an interaction term (program type [Head Start=1 and Early Head Start=0] X mindfulness *z*) was tested in Model 2. Psychological well-being *z* was added in Model 3 to test for mediation.

Structural equation modeling was used to calculate the proportion of the relationship between mindfulness *z* and working alliance *z* that was mediated by psychological well-being *z*. We calculated the direct, indirect, and total effects between mindfulness *z* and working alliance *z* while controlling for Model 2 covariates, accounting for shared variance at the program level, and accounting for missing data using the maximum likelihood missing values estimator (mlmv) in Stata. Bootstrapped 95% confidence intervals (CIs) with 200 replications were calculated for the magnitude of the direct, indirect, and total effects.

Results

The skew and kurtosis of the data for the outcome variable (working alliance) and the two key exposure variables (mindfulness and psychological well-being) indicate that the data for these variables were normally distributed (Table 3) (West, 1995).

Of the 14 home visitor characteristics examined (Table 4), race/ethnicity, education, years of experience, and food insufficiency were associated with both mindfulness and working alliance ($p<.20$). Lower levels of mindfulness were reported among non-Hispanic Whites and those with household food insufficiency. Higher levels of mindfulness were reported among those with an associate's degree and those with more

experience working in early childhood education. A weaker working alliance was reported among non-Hispanic Whites and those with higher levels of education, while a stronger working alliance was reported among those with household food insufficiency. Years of experience working in early childhood education was associated with the strength of the working alliance but not in a graded fashion.

Table 3 Descriptive Statistics For Working Alliance, Mindfulness, And Psychological Well-Being

Descriptive Statistic	Working Alliance	Mindfulness	Psychological Well-Being
N	307	307	307
Mean	67.4	34.2	50.1
SD	7.2	6.1	6.9
Minimum	48	20	28
Maximum	84	48	63
Skewness	-0.04	-0.15	-0.31
Kurtosis (proper)	2.56	2.45	2.73

Notes: The measures of each variable were as follows: working alliance, modified version of the Working Alliance Inventory, Short Form; mindfulness, Cognitive and Affective Mindfulness Scale-Revised; psychological well-being, composite of three subscales (environmental mastery, autonomy, and positive relations) of Ryff's (1995) scales of Psychological Well-Being.

After accounting for shared variance at the program level but before adjusting for covariates, a 1 *SD* higher mindfulness *z* score was associated with a .26 *SD* higher working alliance *z* score (Table 5 Model 1), and this significant association persisted (.27 *SD*) after controlling for race/ethnicity, education, household food insufficiency, and work experience in early childhood education (Table 5 Model 2). The relationship between mindfulness and working alliance was not moderated by program type. When an interaction term (program type [Head Start=1 and Early Head Start =0]) X mindfulness *z*) was added to Model 2 (not shown in Table 5), the unstandardized regression coefficient for the interaction term was not significant (*B*=.10, t=.76, *p*=.45).

Table 4. Relationships Of Home-Visitor Characteristics To Mindfulness And Working Alliance

Characteristic	Mindfulness *Z*				Working Alliance *Z*			
	M (SD)	***F/t***	***df***	***p***	***M (SD)***	***F/t***	***df***	***p***
Sex								
Male	.79 (1.5)	1.60	303	.11	.36 (.49)	0.73	303	.47
Female	-.01 (.99)				-.01(1.0)			
Age, y								
18-29	-.35 (1.1)	8.81	301	<.001	-.02 (.99)	0.09	301	.96
30-39	-.18 (1.0)				.04 (.98)			
40-49	.22 (.90)				-.04 (1.1)			
≥50	.37 (.82)				.02 (.96)			
Non-Hispanic White								
Yes	-.05 (.97)	1.97	302	.05	-.13 (.97)	4.96	302	<.001
No	.25 (1.1)				.60 (.96)			
Education								
High school or GED	-.19 (.98)	3.41	305	.03	.48 (.91)	8.81	305	<.001
Associate's degree	.32 (.94)				.29 (1.0)			
Bachelor's degree or higher	-.04 (1.0)				-.15 (.98)			
Relationship status								
Married	.02 (.97)	0.08	302	.93	-.03 (1.0)	0.14	302	.87
Cohabitating	-.05 (1.0)				-.01 (1.1)			
Other	.00 (1.0)				.03 (1.0)			
Not enough money for utilities								
Yes	-.25 (1.0)	3.17	305	.002	.09 (1.1)	-1.08	305	.28
No	.12 (.96)				-.05 (.98)			
Not enough money for healthcare								
Yes	-.28 (1.1)	2.99	305	.003	.09 (1.1)	-0.93	305	.36
No	.10 (.96)				-.03 (.97)			
Not enough money for housing								
Yes	-.24 (1.1)	1.28	305	.20	-.06 (1.1)	0.33	305	.74
No	.02 (1.0)				0.0 (1.0)			
Received SNAP benefits								
Yes	-.53 (1.1)	2.60	305	.01	.19 (1.1)	-0.93	305	.35
No	.04 (.99)				-.02 (1.0)			
Household food insufficiency								
Yes	-.51 (.97)	1.83	305	.07	.37 (1.1)	-1.32	305	.19
No	.02 (1.0)				-.02 (1.0)			
Own child attended Head Start								
Yes	.03 (.89)	-0.37	300	.71	.17 (1.0)	-1.80	300	.07
No	-.02 (1.0)				-.07 (.98)			
Attended Head Start as a child								
Yes	.01 (1.0)	-0.04	303	.96	.23 (.92)	-1.18	303	.23
No	0.0 (1.0)				-.03 (1.0)			
Program type								
Head Start	.08 (1.0)	-.93	305	.35	-.09 (1.1)	1.07	305	.28
Early Head Start	-.04 (1.0)				.04 (.96)			
Work experience in ECE, y								
0-3	-.35 (1.1)	6.54	300	<.001	-.12 (1.1)	1.87	300	.13
4-10	-.03 (.98)				.17 (.93)			
11-20	.25 (.93)				-.12 (1.1)			
>20	.33 (.75)				-.05 (.92)			

Notes: Test statistics (F/t), degrees of freedom (*df*), and *P* values are for a one-way analysis of variance or independent sample t-tests. SNAP, Supplemental Nutrition Assistance Program (formerly the Food Stamp Program). GED, passed General Education Development Test.

When home visitors were divided into quartiles of mindfulness *z*, we estimated that there was a .73 *SD* difference (95% CI [.38, 1.08] in working alliance *z* between the home visitors in the lowest and highest quartiles of mindfulness *z*, after controlling for Model 2 covariates.

When psychological well-being *z* was added in Model 3 (Table 5), the association between mindfulness *z* and working alliance *z* was no longer statistically significant (p=.09). This finding is suggestive of mediation and consistent with the significant bivariate Pearson correlations between mindfulness and psychological well-being (r=.51, p<.001) and between psychological well-being and working alliance (r=.29, p<.001). Formal testing of the mediation effect of psychological well-being using structural equation modeling resulted in multivariate adjusted coefficients for the indirect effect=.12 [95% CI .08, .21}, direct effect=.14 [95% CI .02, .26] and total effect=0.27 [95% CI .15, .38]. Forty-four percent ([indirect effect/the total effect] X 100) of the total effect of mindfulness on working alliance was explained by psychological well-being.

Discussion

In this cross-sectional study of 307 home visitors working in 50 Head Start and Early Head Start programs in Pennsylvania, those who reported higher levels of dispositional mindfulness reported a stronger working alliance with parents, reflecting higher levels of mutual trust and shared goals for home visiting. This association between mindfulness and working alliance was mediated, in part, by greater levels of psychological well-being among home visitors who were more mindful. To our knowledge, this is the first study to examine how mindfulness is related to the quality of the home visitor-parent working alliance.

Table 5 Linear Regression Models Using Home-Visitor Characteristics To Predict Visitor-Parent Working Alliance Z Score (N=307)

	Model 1			Model 2			Model 3		
	B	**SE *B***	***p***	***B***	**SE *B***	***p***	***B***	**SE *B***	***p***
Intercept	0	.09	.98	.95	.20	<.001	.95	.20	<.001
Mindfulness *z*	.26	.06	<.001	.27	.07	<.001	.14	.08	.09
Non-Hispanic White				-.57	.13	<.001	-.57	.14	<.001
Education									
Associate's degree vs. high school/GED				-.31	.22	.17	-.33	.22	.15
≥Bachelor's degree vs. high school/GED				-.62	.15	<.001	-.65	.15	<.001
Early childhood education work experience, y									
4-10 vs. 0-3				.22	.15	.14	.22	.15	.15
11-20 vs. 0-3				-.20	.18	.25	-.19	.17	.26
>20 vs. 0-3				-.16	.19	.39	-.08	.19	.70
Household food insufficient				.41	.27	.14	.60	.29	.04
Psychological well-being *z*							.25	.08	.003
R^2	.07			.20			.25		
F for change in R^2	(1,47)=17.25		<.001	(8,47)=10.43		<.001	(9,47)=8.93		<.001

Notes: GED, passed General Education Development Test. Multiply imputed data used in models 2 and 3.

This relationship has been identified as a key factor that may influence the quality and outcomes of home-visiting services. Home visiting, like nearly all health, education, and social services, relies heavily on human interaction to achieve its goals, and these interactions can be stressful. High stress levels have been documented in home visitors (Jones Harden, Denmark, & Saul, 2010). Recent attention to increasing mindfulness among clinicians, teachers, and social workers has largely been focused on buffering the negative impacts of workplace stress on the mental health of service providers (Irving et al., 2009; Meiklejohn et al., 2012). Very few studies have examined the impact on clients of mindfulness training given to service providers (Grepmair et al., 2007; Singh et al., 2006; Singh, Lancioni, Winton, Karazsia, & Singh, 2013; Singh et al., 2004). Although, increasing mindfulness may prevent symptoms of poor mental health, such as anxiety and depression (de Vibe et al., 2012), it may also increase positive mental health or flourishing (Ryff & Singer, 1998) and increase the capacity of service providers to establish a stronger working alliance with the clients they serve (Singh, Lancioni, Winton, Singh, et al., 2013).

We measured the home visitor-parent working alliance by modifying the home-visitor WAI-S developed by Santos (2005). The home-visitor WAI-S is in ongoing use in several large studies (Paulsell et al., 2010), including the Evidence-Based Home Visiting to Prevent Child Maltreatment cross-site evaluation funded by the U.S. Department of Health and Human Services (Daro, 2010; Koball, 2009). However, we are aware of no published reports using the WAI-S in a population-based sample of home visitors. Our version was modified to ask home visitors to describe their alliance with all parents in their caseload rather than with an individual parent. This modification, along with the

anonymous nature of the survey, may have contributed to the relatively wide variability in our modified home-visitor WAI-S measure. Without our modification, assessing the working alliance would have required aggregating multiple ratings about individual parents. Aside from requiring greater resources, this approach could not easily preserve the anonymity of the home visitors or parents. The lack of anonymity might skew the data toward stronger alliance ratings. This has been demonstrated previously for parent ratings and may occur because the services that parents usually receive are without charge (Korfmacher et al., 2007; Korfmacher et al., 2008).

To our knowledge the working alliance has only been used in two studies to assess the home visitor-parent relationship. Santos (2005) developed the home-visitor WAI-S and used it with 54 home visitors in Manitoba, Canada. He showed that higher levels of parental depression and cumulative family risk were associated with a stronger home visitor-reported working alliance. Santos hypothesized that home visitors were more strongly motivated to establish a stronger alliance with parents who appeared more vulnerable. In a smaller sample of 32 home visitors in Early Head Start in Kansas City, MO, Sharp and colleagues (2003) used the bond subscale to assess relationship quality. They showed that home visitors' perceptions of relationship quality were unrelated to either parents' or home visitors' positive or negative emotionality.

As reviewed by Korfmacher et al. (2007 & 2008), other studies of home visitors have attempted to assess parental engagement, of which the quality of the home visitor-parent relationship is a component. However, these relationship quality measures, such as the Helper-Client Relationship Inventory, were not based on the model of the working alliance (Bordin, 1979). Two studies have examined how attachment security in the home

visitor is associated with parental engagement in home visiting (Burrell et al., 2009; McFarlane et al., 2010), but it is not clear whether it is feasible to modify the attachment security of home visitors (Berlin, 2012). We know of no studies that have assessed mindfulness among home visitors.

The study has several limitations, including sources of potential bias. Although the survey was web-based and anonymous, all data were self-reported and cross-sectional. We collected data only from the home visitors and not parents. As with all surveys of behaviors and attitudes, measurement bias is possible (Schwarz, 1999). For example, home visitors who reported higher levels of mindfulness may have perceived higher quality working alliance with parents than what the parents or an impartial observer might have reported. Our findings may also be subject to common method bias, specifically, common rater effects, because the home visitors provided the information on all the study variables (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Non-response bias could have affected our results if the respondents differed from non-respondents in ways that modified the association between mindfulness and the working alliance. Because the survey was anonymous, we could not directly compare the characteristics of responding and non-responding home visitors. Although the survey was implemented across the state of Pennsylvania, the results may have limited generalizability to all Head Start and Early Head Start programs or to other models of delivering home-visiting services.

We cannot determine from this cross-sectional study whether higher levels of home-visitor mindfulness are the cause of higher quality a working alliance between home visitors and parents. The cross-sectional nature of the data may have also biased

our estimate of the mediating effect of psychological well-being (Maxwell & Cole, 2007). Therefore, our study can only suggest that greater levels of dispositional mindfulness in the home visitor might improve the home visitor-parent working alliance and do so because of higher levels of psychological well-being. However, our data are consistent with others (Brown & Ryan, 2003) in showing a positive association between dispositional mindfulness and components of psychological well-being.

To confirm our findings, future studies should employ a longitudinal design, assessment of the working alliance by both home visitor and parent, and include a broader sample of home visitors. Despite interest in the home-visitor WAI-S to assess a dimension of the home visitor-parent relationship (Paulsell et al., 2010), more research is needed to examine the association of this measure with the quality and fidelity of home visiting serves, parental receptivity to these services, and child outcomes. Our modified version of the home-visitor WAI-S showed high internal consistency and relatively high variability when used anonymously, which may make the measure useful in future studies attempting to understand how home visitor-parent alliance is related to program outcomes.

Our findings, if replicated by others in longitudinal studies, raise the possibility that mindfulness-based interventions aimed at increasing the dispositional mindfulness of home visitors could strengthen the working alliance between home visitors and parents. Mindfulness-based interventions are being used more widely among health care providers and educators and could be implemented as a component of home-visitor staff training. Recent research has demonstrated the scalability and efficacy of mindfulness-based interventions delivered online and through teleconferencing (Bazarko, Cate, Azocar, &

Kreitzer, 2013; Wolever et al., 2012). In addition to potentially improving the home visitor-parent working alliance, mindfulness-based interventions might also improve the psychological well-being of the home visitors. If home visitors experience greater fulfillment of their basic psychological needs, they may be less likely to experience burnout, which could reduce staff turnover. A more stable home visiting workforce may provide additional benefits to families in the form of predictable routines and continuous assistance provided by home visitors with whom parents and children have developed a trusting relationship. The cumulative effect of home visitors remaining in the workforce and working for longer durations with families who trust them could have population level impacts on the adaptation of behaviors and skills reinforced by the home visitor as well as parental receptiveness to resources important for early child development.

CHAPTER 3

TEACHERS' DISPOSITIONAL MINDFULNESS AND THE QUALITY OF THEIR RELATIONSHIPS WITH CHILDREN IN HEAD START CLASSROOMS

Abstract

The quality of teachers' relationships with children is a key predictor of children's later social emotional competence and academic achievement. Interventions to increase mindfulness among teachers have focused primarily on the impacts on teachers' subjective well-being, but not on the quality of their relationships with children. Furthermore, none of these interventions have involved preschool teachers. To consider the potential of mindfulness-based interventions to improve the quality of teachers' relationships with preschool-aged children, we examined data from an online survey of 1,001 classroom teachers in 37 Pennsylvania Head Start Programs. Using path analysis we investigated the association between teachers' dispositional mindfulness and the quality of their relationships with children (conflict and closeness). We further examined whether this association was mediated by teacher depressive symptoms and/or moderated by perceived workplace stress. Higher levels of dispositional mindfulness among teachers were associated with higher quality relationships with children (less conflict and greater closeness). The association between greater dispositional mindfulness and less conflict was partially mediated by lower depressive symptoms, and this mediated effect differed by the level of perceived workplace stress. These findings suggest that preschool teachers who have higher levels of dispositional mindfulness may experience higher quality relationships with children in their classrooms. Interventions to increase levels of

dispositional mindfulness among early childhood educators may improve their well-being along with the quality of their relationships with children, potentially impacting children's educational outcomes.

Introduction

The quality of relationships between teachers and children in early childhood programs is a key predictor of children's social-emotional competence and academic achievement (Denham, Bassett, & Zinsser, 2012; Raver, Blair, & Li-Grining, 2012). In fact, teacher-child relationship quality may have a greater influence on child outcomes than more commonly assessed teacher attributes, such as education level (Early et al., 2006; Early et al., 2007). To establish high quality relationships with children, teachers must be knowledgeable about children's developmental levels, attuned to children's signals and needs, cognizant of cultural and familial context, and intentionally provide a comfortable, emotionally safe environment for children's learning – all in the context of offering rigorous assessment and instruction. As this is no easy task, early childhood teachers who are able to establish and maintain high quality relationships with children, are themselves socially and emotionally competent adults (Jennings & Greenberg, 2009). They have high levels of self- and social-awareness, regulate their behavior and emotions, and interact with children with intentionality.

In Head Start, a federally-funded comprehensive early childhood education program for low-income preschoolers (Hamre & Pianta, 2001), teachers often work with children who have stressful social circumstances, such as homelessness, living in single-parent households, and having parents with limited income, education, and literacy (Aikens et al., 2010; Bradley & Corwyn, 2002; Brooks-Gunn & Duncan, 1997).

Children's stressors at home can contribute to poor self-regulation, emotional difficulties, and disruptive classroom behaviors that interfere with learning and place high demands on Head Start staff (Blair, 2002; McClelland et al., 2007; Shonkoff, Boyce, & McEwen, 2009; Webster-Stratton, Reid, & Stoolmiller, 2008). High quality teacher-child relationships are particularly important for children from these low-income families (Roorda, Koomen, Spilt, & Oort, 2011), but such relationships require teachers' to maintain high levels of emotion regulation and well-being.

The quality of teachers' relationships with children can be characterized on a continuum of closeness and conflict (Pianta, 1994). Close teacher-child relationships are characterized by warm, reciprocal interactions, with the child turning to the teacher for comfort in times of stress. On the other hand, relationships that are high in conflict are characterized by struggle, frequent anger and frustrated interactions. High-quality teacher-child relationships (low in conflict and high in closeness) have been consistently associated with children's social-emotional competence and academic performance, both of which are key aspects of school readiness (Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002; Denham et al., 2012; Hamre & Pianta, 2001; Pianta & Stuhlman, 2004; Raver et al., 2012; Silver, Measelle, Armstrong, & Essex, 2005). In the context of Head Start, there is limited research on modifiable factors that may improve teacher-child relationships. Banking time, an intervention implemented among Head Start teachers to improve teacher-child relationships through 1-on-1 time with child-led play, has demonstrated positive impacts on teacher-child relationships (Driscoll & Pianta, 2010). However, due to the intensity of the intervention, it may be costly to scale. Therefore, it is

important to consider what other supports might assist Head Start teachers in developing positive relationships with children.

One promising approach to supporting Head Start teachers' relationships with children is to cultivate dispositional mindfulness among the teachers (Meiklejohn et al., 2012). Teachers who are more mindful in daily life may experience more positive relationships with the children in their classroom, but we are not aware of any studies that evaluate the association between dispositional mindfulness and the quality of teacher-child relationships in early childhood education. Much of the research investigating improved mindfulness skills among teachers has focused primarily on the impacts on teachers' subjective well-being and has not been conducted in early childhood education settings, such as Head Start (Benn, Akiva, Arel, & Roeser, 2012; Flook, Goldberg, Pinger, Bonus, & Davidson, 2013; Gold et al., 2010; Lomas, Medina, Ivtzan, Rupprecht, & Eiroa-Orosa, 2017; Roeser, Skinner, Beers, & Jennings, 2012).

There are several mechanisms by which dispositional mindfulness may improve the quality of teacher's relationship with preschool children. Mindfulness is defined by Kabat-Zinn (2003) as "the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment to moment" (p.145). Individuals who are mindful tend to exhibit steady attention and notice and accept their thoughts, feelings and reaction to physical stimuli, including their own internal bodily sensations (Khanna & Greeson, 2013). The ability to be present and aware of one's thoughts and feelings while suspending judgment can improve self-regulation and reduce reactivity (Hölzel et al., 2011; Schussler, Jennings, Sharp, & Frank, 2016; Shapiro et al., 2006).

Mindfulness has been linked to better relationship quality through improved interpersonal communication and the ability to be supportive to others in distress (Bihari & Mullan, 2014; Brown & Kasser, 2005), as in situations teachers frequently encounter when interacting with preschoolers. Participants in Mindfulness-Based Cognitive Therapy (MCBT), which is designed to improve the mindfulness skills of awareness and non-judgement, have reported less reactivity and a calmer demeanor towards negative external stimuli. In interpersonal relations, this results in a greater ability to avoid arguments with others and focus on conveying an understanding of others' perspectives and needs rather than trying to immediately remedy others' problems (Bihari & Mullan, 2014).

Mindfulness may help teachers to approach stressful classroom environments and children's challenging behavior with more awareness, acceptance and emotion regulation. Being aware and accepting of emotions in self and others when appraising stressful situations may help teachers respond to these situations with calm intentionality, being proactive rather than reactive. Teachers who are more mindful may also have more empathy for children (Bihari & Mullan, 2014; Block-Lerner et al., 2007) and show more compassion toward them (Jennings & Greenberg, 2009; Jennings, Snowberg, Coccia, & Greenberg, 2011). Teachers with greater levels of dispositional mindfulness may also have greater relational capacities through improved emotion regulation, which may enable them to react in more constructive ways to disruptive classroom behaviors by understanding children's needs and perspectives, resulting in a less conflicted and more positive teacher-children relationships (Schussler et al., 2016).

Early childhood educators must themselves be well to establish warm, productive relationships with children and families. The strong association between poor mental health in adult caregivers and troubled interpersonal relationships with children has been established in the context of parenting (Campbell et al., 2004; Goodman et al., 2011; National Institute of Child Health, 1999) and early childhood education (Gerber, Whitebook, & Weinstein, 2007; Hamre & Pianta, 2004; Pakarinen et al., 2010; Paro et al., 2009). Early childhood teachers who report depressive symptoms are more likely to demonstrate less sensitivity and greater withdrawal in their interactions with children (Gerber et al., 2007; Hamre & Pianta, 2004). Furthermore, teachers with depressive symptoms report more conflict in their relationships with children (Hamre, Pianta, Downer, & Mashburn, 2008).

Depressive symptoms are common among Head Start teachers, affecting almost one in four (Whitaker et al., 2013), and have been associated with poor quality teacher-child relationships in Head Start classrooms (Whitaker, Dearth-Wesley, & Gooze, 2015). Low levels of psychological well-being among Head Start teachers could be the starting point in a series of causal links that may help explain why Head Start has experienced difficulty achieving its goal of increasing school readiness for children living in poverty (Mead, 2014). Teachers who experience poor mental health may find it challenging to establish positive warm and responsive interpersonal relationships with the children they teach, which in turn could make it difficult for teachers to promote school readiness in their classrooms.

Despite the deleterious impact of teacher depressive symptoms on teacher-children relationships, dispositional mindfulness, which can be increased through

mindfulness-based interventions, has been consistently shown in intervention studies to improve depressive symptoms (Goyal, Singh, Sibinga, & et al., 2014; Greeson et al., 2015; Hofmann, Sawyer, Witt, & Oh, 2010). One mechanism by which mindfulness may improve depressive symptoms is by lowering levels of rumination, a process in which a person focuses only on symptoms of distressing thoughts, their causes and consequences (Deyo, Wilson, Ong, & Koopman, 2009; Hawley et al., 2014). Teachers who are more mindful may be able to more easily disengage from depressive, ruminative thoughts (Greeson et al., 2015), which may allow them to focus their attention on children's needs, regulate their own emotional responses, and build higher quality teacher-child relationships in their classroom.

Finally, in addition to considering what personal factors Head Start teachers bring to the quality of their relationships with children, the context of a stressful workplace cannot be ignored. It is well established that Head Start teachers face many demands (Li-Grining et al., 2010; Zhai, Raver, & Li-Grining, 2011). Teachers are responsible for keeping children physically safe and emotionally secure, providing instruction to meet learning outcomes, and communicating effectively with families and coworkers. Because the environment in which teachers interact with children is also a predictor of the quality of teacher-children relationships (Pianta, 1999), it is important to consider teachers' experience of stress in the Head Start workplace. Perceived workplace stress has been shown to influence teacher interactions with young children in Head Start (Gerber et al., 2007). Higher levels of workplace stress in Head Start, defined as high demands, low support and low control (Karasek, 1979), is independently associated with poorer quality teacher-children relationships (Whitaker et al., 2015). Specifically when teachers

perceive more stress in the workplace, they report higher conflict (but not lower closeness) in their relationships with children. Because early child educators and Head start teachers in particular, are likely to experience high levels of workplace stress, the association between teachers' dispositional mindfulness and teacher-children relationships may differ depending on the level of perceived workplace stress.

In summary, high quality teacher-children relationships in Head Start may improve children's social-emotional competence and academic achievement. Improving teachers' dispositional mindfulness may support teachers in cultivating high quality relationships with children, and may do so in part by reducing teachers' depressive symptoms. These associations may also differ across contexts with varying levels of perceived workplace stress. Figure 2 illustrates our proposed conceptual framework for how children's social-emotional competence and academic achievement are related to the following variables: teachers' dispositional mindfulness, depressive symptoms, relationships with children, and workplace stress.

Using data from an online survey of 1,001 classroom teachers in 37 Pennsylvania Head Start Programs, we examined the association between teachers' dispositional mindfulness and their relationships with children (conflict and closeness). We hypothesized that greater dispositional mindfulness would be associated with less conflict and more closeness in teachers' relationships with children. Consistent with previous intervention research and theory demonstrating the longitudinal relationships between greater dispositional mindfulness and reductions in depressive symptoms (Greeson et al., 2015; Hofmann et al., 2010) and between greater depressive symptoms and lower quality

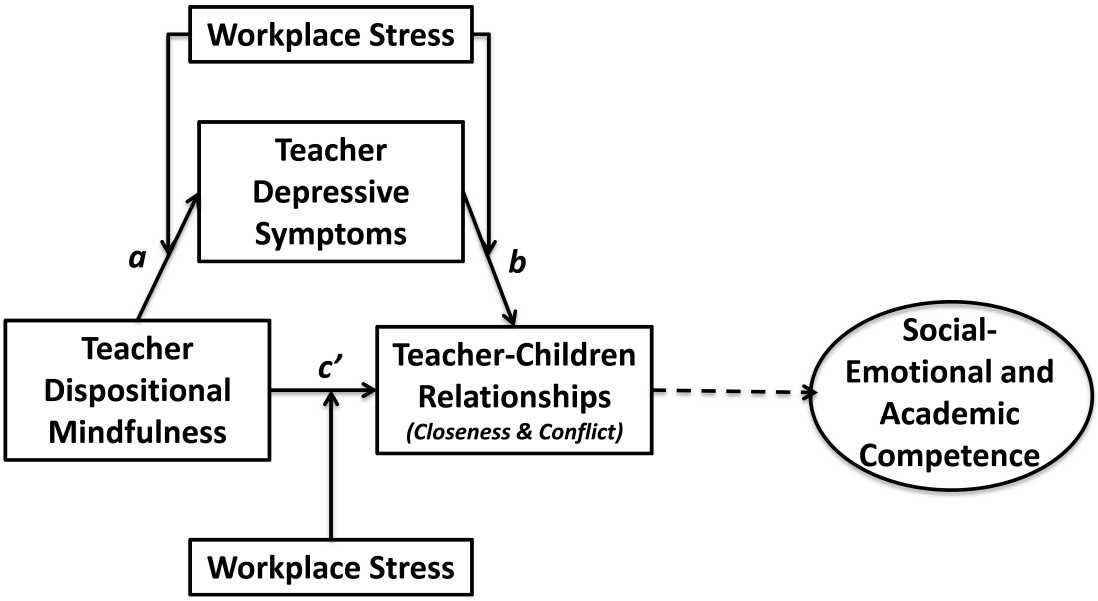

Figure 2. Proposed Conceptual Framework Between Study Variables (school readiness not assessed in the current study). Workplace stress is a proposed moderator of the relationship between dispositional mindfulness and teacher-children relationships, either as a moderator of the direct effect (*c'*) or of the indirect effect (*a* and *b*).

teacher-children relationships (Gerber et al., 2007; Hamre & Pianta, 2004; Hamre et al., 2008; Whitaker et al., 2013), we hypothesized that the association between greater mindfulness and higher quality teacher-children relationships will be mediated, in part, by lower levels of teachers' depressive symptoms. Past research in this sample (Whitaker et al., 2015), led us to further hypothesize that the association between dispositional mindfulness and teacher-children relationships may be moderated by workplace stress, whereby the association between dispositional mindfulness and teacher-children relationships would be weaker in settings where teachers perceive higher levels of workplace stress.

Method

Overview

Data for this study were obtained from the Pennsylvania Head Start Staff Wellness Survey (SWS), a one-time web-based survey of all staff working in the state's Head Start and Early Head Start programs. This study focuses only on Head Start classroom teachers, but the survey also included home-based visitors and family service workers, as well as program directors and other managers. No data were collected from children or families. The details about the survey design and sample have been described elsewhere (Whitaker et al., 2013; Whitaker et al., 2015). The survey, conducted over four months in the spring of 2012, was designed to describe the physical health and psychological well-being of the staff members and its impact on their functioning at work. These data were collected as part of a needs assessment to identify potential targets for interventions that might increase both staff wellness and children's school readiness, and the study was explained to the Head Start staff in this way. The Pennsylvania Head Start Association, a non-profit advocacy organization for the state's Head Start and Early Head Start programs and families, helped recruit programs to participate in the survey. To minimize social desirability bias and assure confidentiality, the survey was anonymous and voluntary. The research was approved by Temple University's Institutional Review Board.

Survey administration

The director of each participating program was responsible for inviting all staff members in his or her program to complete the survey, either at or away from work. The research team provided program directors with printed materials to announce and

describe the survey, directions to reach the survey website, and periodic updates on the response rates of all programs. The research team made no other contact with program staff and offered no monetary incentives to individual staff members to participate in the survey. However, programs with a final response rate of at least 75% were able to participate in a raffle in which the program could receive one of six gift cards ranging in value from $100 to $250.

Participating Head Start Programs and Teachers

As previously described (Whitaker et al., 2015), 37 of the 54 Head Start programs in Pennsylvania agreed to participate in the survey. Using program-level administrative data from Head Start's Program Information Report (US Department of Health and Human Services, 2011), we compared the characteristics of the 37 participating programs to the 17 non-participating programs The participating programs had a smaller mean proportion of single parent families (50% versus 60%, $p < .001$), but there were no significant differences in the mean proportion of families in which neither parent had graduated from high school (18% versus 22%, $p = .24$), or the mean proportion of families receiving Supplemental Security Income (14% versus 13% , $p = .53$). There were also no significant differences in the percentage of programs that were located in metro areas (76% versus 57%, $p = .16$) or had small enrollments (lowest tertile of enrollment) (32% versus 35%, $p = .84$).

As previously detailed (Whitaker et al., 2015), 1,001 of the 1,911 (52%) teachers in the 37 participating programs, completed the survey. The respondents included 550 lead teachers and 451 assistant teachers. Of these, 98% were women, 51% had a bachelor's degree, 89% reported being of white race, and 6% of Hispanic ethnicity.

Based on our prior analysis of the Program Information Report, the racial/ethnic distribution and education levels of the 1,001 teachers who responded to the survey were similar to those of the 1,911 teachers in the 37 participating programs (Whitaker et al., 2015). Classroom composition for the teachers who participated is not available due to the anonymous web-based nature of the data collection procedures. However, Head Start policy states that each classroom must have at least one teacher and one assistant teacher, and that classroom size cannot exceed 20 preschool-aged children ("Head Start Policy and Regulations", n.d.).

Study Measures

Quality of teacher-children relationships.

To assess teacher-children relationships, we used a modified version of the Student–Teacher Relationship Scale (STRS) short form (15-item) (Pianta, 2001). As previously described (Whitaker et al., 2015), we modified the STRS short form (15-items) (Pianta, 2001) to allow each teacher to provide an aggregated assessment of her/his relationships with all the children in the classroom. Because this large-scale survey was designed to be anonymous, it was not feasible to collect STRS reports from the teacher on a random sample of individual students in the classroom. The STRS modifications were limited to changing the word “child” to “children” and using plural verbs and modifiers. In the prelude to the scale items, respondents were given the following instructions: “Please reflect on how much each of the statements below currently applies to your relationship with the children in your classroom. All relationships are individual, but in responding, please think about your relationships with the children in your classroom in general” (underline added in survey for emphasis).

On a 5-point scale ranging from 1 (definitely does not apply) to 5 (definitely applies), teachers were asked to rate the degree to which each item applied to their relationships with the children in their classroom. The items were grouped into two subscales—conflict and closeness—which have been shown to have high discriminant validity (Hamre & Pianta, 2001). The eight items on the conflict subscale assess negative, insecure, and hostile aspects of relationships, while the seven items on the closeness subscale pertain to warmth, security, and openness in relationships. Subscale scores were calculated by summing items for each subscale, with higher scores indicating higher levels of conflict and closeness. In the current sample, the internal consistency (Cronbach's alpha) of the revised conflict and closeness scales were .73 and .72, respectively; and the correlation (Pearson's *r*) between the two scales was -.37.

Dispositional Mindfulness

Dispositional mindfulness, or the tendency to be mindful in daily life, was assessed using the Cognitive and Affective Mindfulness Scale-Revised (CAMS-R), which has demonstrated both convergent and discriminate validity with other measures of mindfulness and well-being (Feldman et al., 2007). This single-factor, 12-item, self-report measure assesses four common components of mindfulness (attention, present-focus, awareness, and acceptance) (Baer et al., 2009; Bishop et al., 2004; Kabat-Zinn, 2003), using three items for each component. Teachers were asked to assess how much each item (e.g., "It is easy for me to concentrate on what I am doing", "I am able to focus on the present moment", "I try to notice my thoughts without judging them", and "I can accept things I cannot change") applied to how they relate to their thoughts and feelings. Items were scored on a four-point scale ranging from 1 (rarely/not at all) to 4 (almost

always) and summed, with a higher total score indicating a more mindful disposition. In the current sample, the internal consistency (Cronbach's alpha) of the dispositional mindfulness scale was .85.

Depressive symptoms

Depressive symptoms were assessed with the 20-item Center for Epidemiologic Studies Depression Scale (CES-D), which demonstrates both convergent and discriminate validity with other measures of affect and well-being in addition to clinical ratings of depression (Knight, Williams, McGee, & Olaman, 1997; Radloff, 1977). Reflecting on the prior week, teachers were asked to rate the frequency of symptoms on a scale of 0 (less than once a week) to 3 (5-7 days a week). Higher total scores indicated greater amounts of depressive symptoms. The internal consistency (Cronbach's alpha) of this scale in the current sample (.91) is consistent with both general and clinical population estimates (Radloff, 1977).

Workplace stress

Our survey contained a shortened version (Ryff et al., 2011) of the Job Content Questionnaire (JCQ), which is a widely-used self-report measure of workplace stress that assesses three domains: demands, control, and support. The JCQ has demonstrated both statistical and predictive validity in large samples across several countries (Karasek et al., 1998). On a 5-point scale ranging from 1 (all of the time) to 5 (never), teachers were asked to rate how often each of 19 statements was true of their work in Head Start. The demands scale (covering workload and ability to finish tasks) had five items, the control scale (covering skill discretion and decision authority) had nine, and the support scale (covering coworker and supervisor support) had five. To account for the cumulative

effect of workplace stress (Häusser, Mojzisch, Niesel, & Schulz-Hardt, 2010; Van der Doef & Maes, 1998), we constructed an overall workplace stress score as previously described (Whitaker et al., 2015). In brief, we first summed the standardized (z) scale scores for demands, control, and support to account for the differing number of items in each scale. To center the values of this summed stress score at a mean of zero, we then standardized it. Higher scores on the demands, control, and support scales were coded to indicate greater demands, less control, and less support, respectively. Therefore, higher values on the overall standardized stress score signified greater workplace stress.

Covariates

Previous work done in this sample of teachers revealed that only teacher type (assistant versus lead) and years of experience working in early childhood education were significantly associated with teacher-children relationships (Whitaker et al., 2015) and, therefore, these were the only two covariates assessed in this sample as potential confounders of the association between dispositional mindfulness and teacher-children relationships. Both covariates were assessed categorically. Teacher type was coded 1=*assistant* teacher and 0=lead teacher. Years of experience was coded into three categories to define teachers as early career, mid-career and advanced career; 0=0-6 years, 1=7-14 years and 2=≥15 years.

Analytic Approach

Our analysis had three goals: to determine whether: 1) teachers with greater levels of dispositional mindfulness perceived higher quality relationships with the children in their classroom (less conflict and greater closeness), 2) depressive symptoms mediated the association between dispositional mindfulness and teacher-children relationships, and

3) workplace stress moderated the association between dispositional mindfulness and teacher-children relationships (see Figure 2). Because the survey was web-based and anonymous, we did not assess any child outcomes. All statistical analyses were conducted using Stata/SE v 12.1 (StataCorp, 2012).

To address the analytic goals, we used path analysis with robust (Huber-White) standard error estimates that accounted for the clustering of teachers within each of the 37 programs (Heeringa et al., 2010). We used this conservative approach to estimating standard errors despite intraclass correlations of zero for closeness and conflict across the 37 programs. We also applied a maximum likelihood missing values estimator that used all available data for estimation instead of employing listwise deletion. Missing data occurred infrequently (<3%, see Table 6), was not systematic and did not cause any cases to be excluded from the path analysis. We fit separate models for each teacher-children relationship variable (conflict and closeness). Each model was adjusted for the two covariates (teacher type and years of experience) and all interaction terms used to assess moderation (Figure 2). Additionally, each model was fit using standardized versions of closeness, conflict, dispositional mindfulness, depressive symptoms and workplace stress to enhance interpretability of the path coefficients. We first estimated the magnitude of the association between dispositional mindfulness and each teacher-children relationship variable (see path *c'* in Figure 2).

In the same models, we tested for mediation by including paths between dispositional mindfulness and depressive symptoms and between depressive symptoms and each teacher-children relationship variable (see paths *a* and *b* in Figure 2). We calculated bootstrapped estimates of the indirect effect with bias-corrected 95%

confidence intervals, using 200 replications, to evaluate the proportion of the association between dispositional mindfulness and closeness/conflict that was explained by depressive symptoms.

Finally, we assessed moderated mediation by including interaction terms to evaluate the moderating effect of workplace stress on each of the following paths in Figure 2: 1) between dispositional mindfulness and depressive symptoms (indirect effect, path *a*); 2) between depressive symptoms and the teacher-children relationship variable (indirect effect, path *b*); and 3) between dispositional mindfulness and the teacher-children relationship variable (direct effect, path *c'*).

When moderated mediation was present, as indicated by significant ($p<.05$) interaction terms in the path model, we calculated conditional direct and indirect effects with accompanying 95% confidence intervals at each level of workplace stress (761 unique values in the observed data) using 500 bootstrapped samples (Hayes, 2012; Preacher, Rucker, & Hayes, 2007). This technique allowed us to display the conditional effect (with 95% confidence intervals) across all observed values of workplace stress. In this case the moderating variable was analyzed as a continuous variable rather than selecting an arbitrary cut-point(s) for categories of workplace stress (e.g. low, medium, and high tertiles of workplace stress). With this technique, we also calculated the region of significance for the conditional effect without making the assumption of normality for the shape of the sampling distribution, which is implied when using a normal-theory based approach, such as the Johnson-Neyman technique (Preacher et al., 2007).

Results

Descriptive statistics and bivariate correlations

Levels of dispositional mindfulness, workplace stress, and teacher-children conflict had a statistically normal distribution, but the distribution of teacher-children closeness was skewed. Consistent with others studies (Gallagher, 2013; Pianta & Stuhlman, 2004), most teachers reported high levels of closeness with the children in their classroom. Levels of depressive symptoms also had a skewed distribution, with 6% of teachers reporting no depressive symptoms (CES-D=0). All bivariate correlations between conflict, closeness, dispositional mindfulness, depressive symptoms, and workplace stress were statistically significant ($p<.001$), except for the correlation between workplace stress and closeness (Table 6). Those teachers with more years of work experience reported greater closeness in their relationships with children ($r(969)=.07$, $p=.04$) but also greater workplace stress ($r(973)=.10$, $p=.007$). When Student's t-tests were used to compare mean levels of the study variables between lead and assistant teachers, lead teachers had significantly higher closeness scores (M=33.79, SD=1.67 vs. M=33.14, SD=2.31, t(993)=5.06, p<.001) and lower conflict scores (M=16.85, SD=4.52 vs. M=17.51, SD=4.83), t(993)=-2.23, p=.03). There were no statistically significant differences ($p>.05$) in mean levels of mindfulness or depressive symptoms between lead and assistant teachers.

Path Analysis predicting conflict in teacher-children relationships

Higher levels of dispositional mindfulness among teachers were associated with less conflict in teacher-children relationships (standardized path coefficient=-.20, $p<.001$) (Figure 3). There was evidence that this association was mediated by lower

Table 6. Descriptive Statistics And Intercorrelations Among Closeness, Conflict, Mindfulness, Depressive Symptoms, Workplace Stress And Covariates

Measure	N	*M*	*SD*	Range	Skew	1	2	3	4	5	6
1. Closeness	995	33.5	2.0	15-35	-2.3						
2. Conflict	995	17.1	4.7	8-38	.49	-.37***					
3. Mindfulness	991	34.7	5.8	16-48	.06	.20***	-.28***				
4. Depressive Symptoms	988	10.8	9.4	0-55	1.5	-.12***	.24***	-.55***			
5. Workplace Stress	999	0.0	1.0	-3.15-4.24	.10	-.06	.16***	-.25***	.31***		
6. Years of Experience	975	--	--	0-2	--	.07*	-.02	.06	-.06	.10**	
7. Assistant Teacher	1,001	--	--	0-1	--	-.20***	.09*	.05	0	-.17***	-.19***

Notes: M, SD and Skew not listed for categorical variables
Pearson correlations between continuous variables (1-5), polyserial correlations between continuous (1-5) and categorical variables (6-7), and polychoric correlation between categorical variables (6-7)
Years of Experience coded >15 Years=2 (n=286), 7-15 Years=1 (n=338) and 0-6 Years=0 (n=351)
Assistant Teacher coded Assistant Teacher=1 (n=451) and Lead Teacher=0 (n=550)
*p<.05, **p<.01, ***p<.001

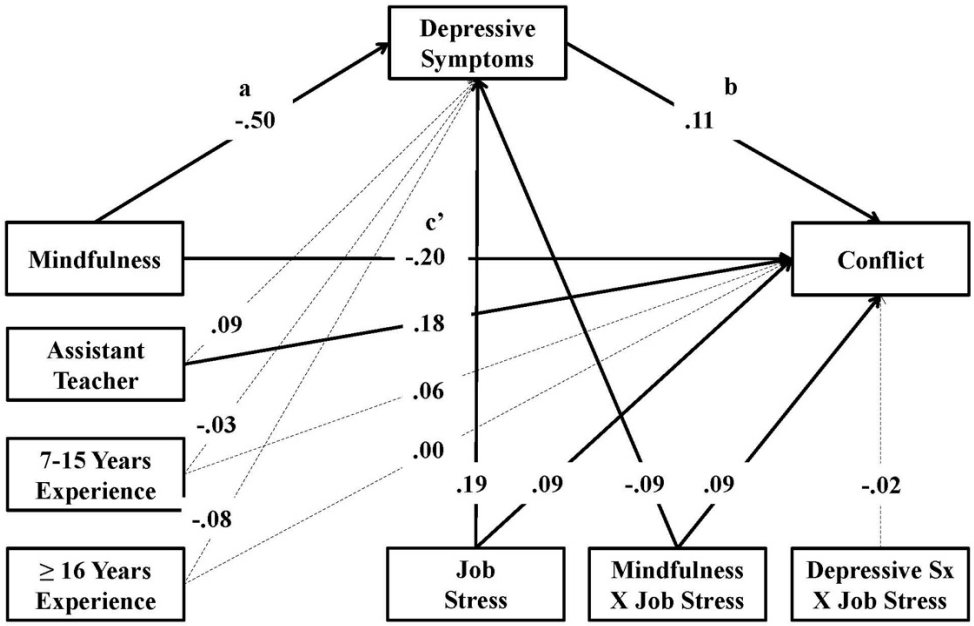

Figure 3. Structural Equation Model Predicting Teacher-Children Conflict And Testing Mediation By Teacher Depressive Symptoms (n=1,001). Solid lines indicate statistically significant path coefficient (p<.05). Model adjusted for assistant teacher (vs. lead teacher), years of experience (reference category 0-6 years of experience) and clustering at the program level. The model also includes interaction terms used to assess moderation by workplace stress of the mediated relationship between dispositional mindfulness and conflict (path *c'*), dispositional mindfulness and depressive symptoms (path *a*) and depressive symptoms and conflict (path *b*). Model fit statistics: log likelihood model=-10041.78, df=37, Akaike's information criteria (AIC)= 20157.57, Bayesian information criteria (BIC)=20339.19. Traditional fit statistics (CFI, TLI, RMSEA) were not computed because of controlling for clustering effects at the program level.

levels of teachers' depressive symptoms in that greater dispositional mindfulness was associated with fewer depressive symptoms (standardized path coefficient=-.50, p<.001) and fewer depressive symptoms was also associated with lower conflict (standardized path coefficient=.11, p=.01) (Figure 3). The bootstrapped indirect effect of mindfulness on conflict through depressive symptoms (indirect effect=-.06, 95% CI -.1 to -.02)

accounted for approximately 23% of the total effect of mindfulness on conflict, suggesting that the majority of the effect was direct (path *c'* in Figure 3).

The path analysis demonstrated evidence that this mediated relationship (between mindfulness and conflict by depressive symptoms) was moderated by levels of workplace stress (see Figure 3). There was a significant interaction between stress and mindfulness (standardized path coefficient =-.09, p=.02) in the relationship between mindfulness and depressive symptoms (path *a* in Figure 3). There was also significant interaction between stress and mindfulness (standardized path coefficient =.09, p=.01) in the relationship between mindfulness and conflict (path *c'* in Figure 3). However, there was no significant interaction between workplace stress and depressive symptoms (standardized path coefficient=-.02, p=.44) in the relationship between depressive symptoms and conflict (path *b* in Figure 3). In summary, workplace stress moderated paths *a* and *c'* but not *b*.

For the two paths that demonstrated evidence of moderated mediation, we calculated conditional effects at every level of workplace stress and used this moderating variable as a continuous measure. The magnitude of the indirect effect between mindfulness and conflict explained by the association between greater mindfulness and less depressive symptoms (see path *a* in Figure 3) was stronger when the levels of perceived workplace stress were higher (Figure 4). This conditional indirect effect of mindfulness on conflict through depressive symptoms was statistically significant at nearly all reported levels of standardized workplace stress (levels ≥-2.40, which were reported by >99% of the sample). The association between greater mindfulness and less conflict (see path *c'* in Figure 3) was stronger when the levels of perceived workplace stress were lower (Figure 5). Mindfulness had a statistically significant direct effect on

conflict across the majority of reported levels of standardized workplace stress (levels ≤ 1.15, which were reported by 87.5% of the sample). In summary, some of the effect of greater dispositional mindfulness on lower conflict was mediated by lower depressive symptoms, but the majority of this effect was direct and this direct effect was even stronger when perceived levels of workplace stress were low.

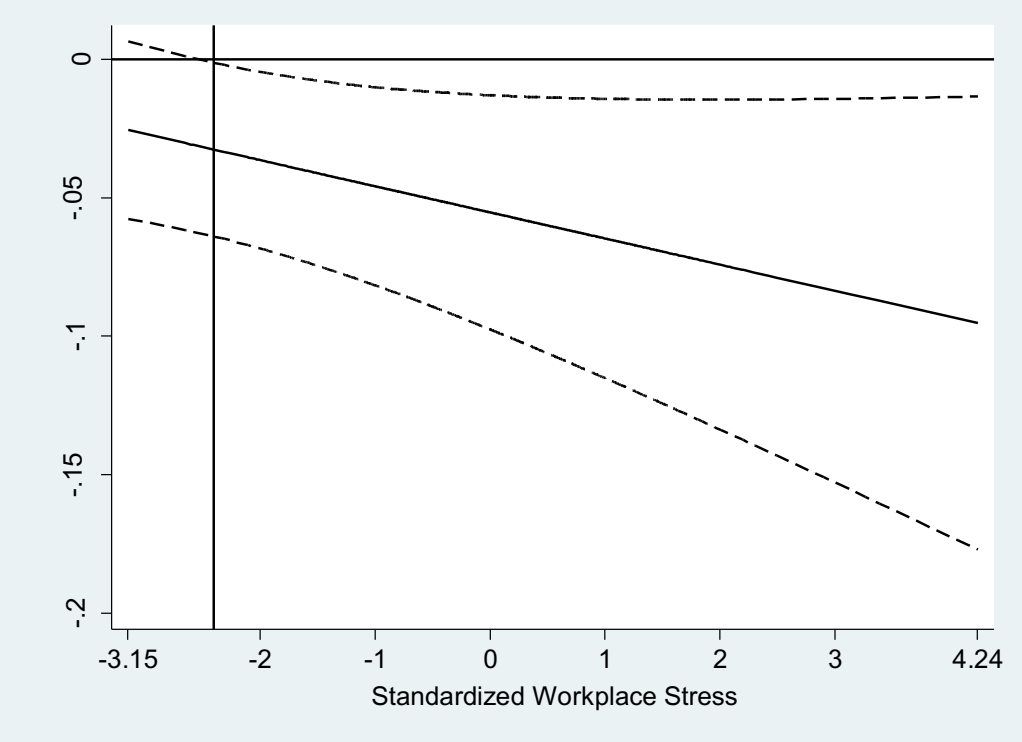

Figure 4. Conditional Indirect Effect Of Dispositional Mindfulness On Teacher-Children Conflict Through Teacher Depressive Symptoms Across Values Of Standardized Workplace Stress On Path Between Mindfulness And Depressive Symptoms (see path *a* in Figure 2). Solid sloped line represents condition indirect effect and dashed lines represent 95% confidence bands. Region of statistical significance is denoted by the area to the right of the solid vertical line (values ≥-2.40 for standardized workplace stress).

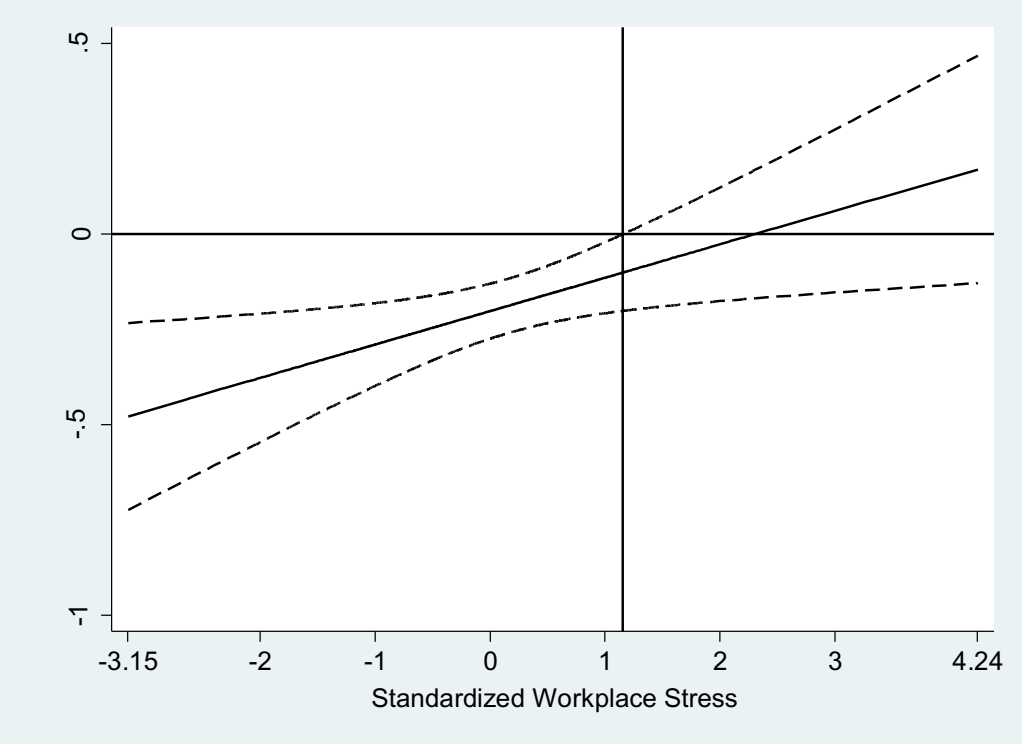

Figure 5. Conditional Direct Effect of Dispositional Mindfulness On Teacher-Children Conflict Across Values Of Standardized Workplace Stress (see path *c'* in Figure 2). Solid slopped line represents condition direct effect and dashed lines represent 95% confidence bands. Region of statistical significance is denoted by the area to the left of the solid vertical line (values ≤1.15 for standardized workplace stress).

Path analysis predicting closeness in teacher-children relationships

Higher levels of teachers' dispositional mindfulness were associated with greater closeness in teacher-children relationships (standardized path coefficient=.19, $p<.001$) (Figure 6). However, this association was not mediated by teacher depressive symptoms as evidenced by the bootstrapped indirect effect of dispositional mindfulness on closeness through depressive symptoms (indirect effect=.003, 95% CI -.04 to.04). In addition, there was no evidence that the association between dispositional mindfulness and closeness was moderated by workplace stress (standardized path coefficient for the interaction between mindfulness and workplace stress=-.01, $p=.68$). In summary, greater

dispositional mindfulness was associated with greater closeness but this association was not mediated by lower levels of depressive symptoms and did not differ significantly across levels of reported workplace stress.

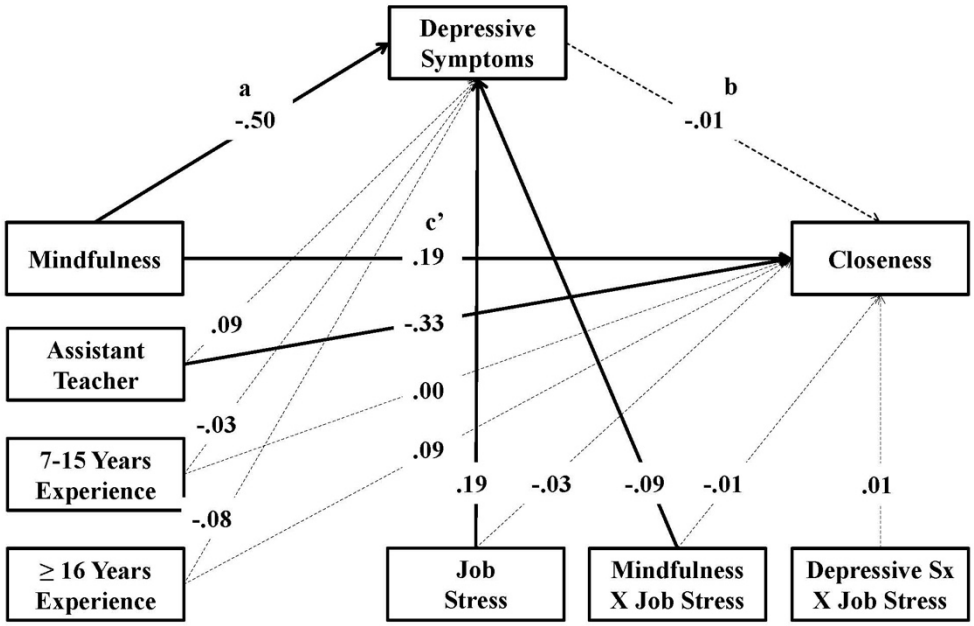

Figure 6. Structural Equation Model Predicting Teacher-Children Closeness And Testing Mediation By Teacher Depressive Symptoms (n=1,001). Solid lines indicate statistically significant path coefficient ($p<.05$) and dashed lines indicate non-significant path coefficients ($p\geq.05$). Model adjusted for assistant teacher (vs. lead teacher), years of experience (reference category 0-6 years of experience) and clustering at the program level. The model also includes interaction terms used to assess moderation by workplace stress of the mediated relationship between dispositional mindfulness and conflict (path *c'*), dispositional mindfulness and depressive symptoms (path *a*) and depressive symptoms and conflict (path *b*). Model fit statistics: log likelihood model=-10066.27, df=37, Akaike's information criteria (AIC)= 20206.55, Bayesian information criteria (BIC)=20388.17. Traditional fit statistics (CFI, TLI, RMSEA) were not computed because of controlling for clustering effects at the program level.

Additional Analysis

To address concerns of non-normality in the closeness and depressive symptoms variables, we re-evaluated both the closeness and conflict models described above using log transformed versions of closeness and depressive symptoms. We also excluded one outlier that increased the skew of closeness above moderately non-normal levels (West, 1995). These modifications resulted in very minor attenuation of the reported findings and did not alter the fundamental conclusion of the results.

An alternative analysis of our data demonstrates the magnitude of the effect of dispositional mindfulness on teacher-child relationships. Instead of using mindfulness as a continuous variable we entered mindfulness into the path analysis as quartiles, with the lowest quartile serving as the reference group. This results of the full models showed that the conflict score was 0.47 standard deviation units lower and the closeness score was 0.4 standard deviation units higher in the highest quartile of mindfulness than in the lowest quartile.

Discussion

To our knowledge, this is the first study in early childhood education to demonstrate the association between dispositional mindfulness among teachers and the quality of their relationships with children. Among 1,001 Head Start teachers, those with higher levels of dispositional mindfulness reported increases in the quality of their relationships with the children in their classrooms (less conflict and greater closeness). In other words, teachers who reported greater ease with attention, focusing, and acceptance in the present moment, identified their relationships with children as more emotionally close and comfortable, less strained and less conflicted. A mindful disposition may help

teachers view daily challenging interactions with more equanimity. Alternatively, mindful teachers may have fewer challenging interactions. Their attention and focus may help them to be proactive in their guidance of young children, structuring the classroom for successful interactions and diffusing potentially difficult situations before they begin (Jennings & Greenberg, 2009; Schussler et al., 2016; Sharp & Jennings, 2016).

The association between teachers' mindfulness and relational conflict was partially mediated by depressive symptoms, such that more mindful teachers experienced lower levels of depressive symptoms and thus less conflicted relationships with the children in their classrooms. Teachers who experience depressive symptoms may have difficulty engaging in relationships with young children in their classrooms, especially those with high needs (Roberts, LoCasale-Crouch, Hamre, & DeCoster, 2016). Teachers who are more mindful may be better able to disengage from depressive or ruminative thoughts, and experience fewer difficult exchanges with children. Additionally, a mindful disposition may help teachers appraise stressors differently, such that children's difficult behavior may not be perceived as a threat. Finally, mindful teachers may be aware of situations that may elicit challenging behavior, and take action to engage in reappraisal to regulate their emotional response (Sharp & Jennings, 2016).

The association between higher mindfulness and less conflict that was mediated by depressive symptoms was moderated by teachers' perceptions of workplace stress (moderated mediation). This moderation occurred along two pathways. In the direct pathway the association between greater dispositional mindfulness and less conflict was stronger in situations where teachers perceived lower levels of workplace stress. In part of the indirect pathway, the association between greater dispositional mindfulness and

lower depressive symptoms was strongest where teachers perceived higher levels of workplace stress. Mindfulness may provide a greater buffering effect against the impacts of depressive symptoms in situations where perceived workplace stress is high; but mindfulness may lead to lower conflict where perceived workplace stress is low.

Limitations

Limitations associated with its cross-sectional methodology and reliance on teachers' perspectives are present in this study. As with all surveys of behaviors and attitudes, measurement bias is possible (Schwarz, 1999). For example, teachers who reported higher levels of dispositional mindfulness may perceive their relationship quality to be higher than impartial observers might report. Similarly, because the teachers provided information on all variables, results from this study may be subject to common method bias, specifically, common rater effects (Podsakoff et al., 2003). Research that provides multiple perspectives, such as observed interactions between teachers and children could help to validate associations among teachers' perceptions and their behavior in the classroom. Our estimates of the mediating effects of depression may be subject to bias that could only be addressed using longitudinal data (Maxwell & Cole, 2007; Maxwell, Cole, & Mitchell, 2011). Scores on the closeness measure were skewed, and, therefore, our results on teacher-children closeness should be interpreted more cautiously than those on conflict. This skewness is a limitation that may also have impacted our ability to detect mediation by depressive symptoms or moderation by workplace stress due to limited variability in the outcome.

While these data represent a large sample of Head Start teachers in one state, the results may not be generalizable to all Head Start programs or to other early childhood

programs. Further longitudinal research is needed to confirm our findings that Head Start teachers with a more mindful disposition experience higher quality relationships with the children in their classroom, and that a reduction in teachers' depressive symptoms, may be one mechanism by which teacher-children relationships are improved.

Furthermore, this cross-sectional analysis cannot establish whether higher levels of teachers' dispositional mindfulness causes higher quality teacher-children relationships. Experimental studies are needed to establish the causal nature of this association. However, reverse causality seems unlikely in this situation because interventions to increase mindfulness suggest that it has beneficial effects on interpersonal relationships (Schussler et al., 2016).

Implications for research

Although the magnitude of the associations between dispositional mindfulness and teacher children relationships in our large observational study were modest (McCartney & Rosenthal, 2000), there is now increasing evidence in smaller intervention studies that mindfulness training can promote teacher well-being and improve educational outcomes for young children (Frank, Jennings, & Greenberg, 2013; Lomas et al., 2017; Meiklejohn et al., 2012; Roeser et al., 2012). One example is the *Cultivating Awareness and Resilience in Education* (*CARE*) program (Jennings, Frank, Snowberg, Coccia, & Greenberg, 2013). *CARE* combines emotion skills instruction, mindfulness practices, and compassion-building activities in an intensive 30-hour program combining group-based sessions with face-to-face interactions between trainers and teachers. In a randomized controlled trial with 50 elementary teachers, *CARE* had significant impacts on teachers' mindfulness, emotion regulation, somatic symptoms, teaching self-efficacy,

burnout, and stress related to time-urgency. Additional evaluation of *CARE* using a cluster randomized trial design among 224 teachers in 36 urban elementary schools demonstrated improvements in teachers' social emotional competence and the quality of their interactions with children in the classroom (Jennings et al., 2017). The ability to regulate emotions and reappraise situations before assessing and reacting, a finding among teachers who participate in *CARE*, demonstrates the potential impact of mindfulness-based interventions on teachers' relational capacities (Sharp & Jennings, 2016). Cultivating non-judgmental awareness through mindfulness-based interventions may be a precursor to well-being and one mechanism by which teachers improve emotion regulation. Greater teacher well-being and emotion regulation may, therefore, promote a positive classroom climate by decreasing teachers' reactivity in stressful situations and increasing their compassion and empathy (Schussler et al., 2016).

In another study, Flook and colleagues (2013) examined the impact of a Mindfulness-Based Stress Reduction course on 18 elementary school teachers in Wisconsin. The 26-hour program, which included instruction and group practice, improved teachers' reports of mindfulness, psychological distress, burnout, self-compassion, and attention while also improving observed classroom organization. An important next step is to expand the examination of mindfulness education to early childhood educators. In a preliminary study with three preschool teachers, Singh and colleagues (2013) found that children whose teachers attended an 8-week mindfulness course demonstrated decreased negative peer social interactions but this study did not assess the quality of teacher's relationships with children.

Future research linking teachers' dispositional mindfulness to children's outcomes would also provide evidence for how teachers' well-being is associated with their effectiveness with young children. Furthermore, future research using longitudinal data and direct classroom observations to accompany teachers' reports could help extend and support this study's findings.

Implications for practice

Our study has three implications for supporting the relationships between Head Start teachers and children: improving teachers' dispositional mindfulness, addressing depressive symptoms among teachers, and reducing workplace stress. Improving teacher well-being and teacher-children relationships through mindfulness-based interventions may represent an opportunity to create programs centered around organizational commitments to social-emotional learning (Jennings & Greenberg, 2009) that may ultimately result in closing educational achievement gaps between children who live in poverty and their more economically advantaged peers (Jones, Greenberg, & Crowley, 2015; Zhai, Raver, & Jones, 2015). For example, schools and programs can support teachers' participation in community-based classes that teach and support the use of mindfulness-based practices, including meditation and yoga sessions.

Instruction in mindfulness-based practices could be offered as part of pre-service teacher training and ongoing professional development. In this way, the emotional climate of the entire school might benefit from teachers' improved well-being, attention, emotion regulation, and relationship quality. Cultivating these capacities in the teaching workforce may reduce the burden placed on school psychologists and mental health professionals working in school settings. For example, in Head Start classrooms where

teachers have greater levels of dispositional mindfulness, children may exhibit higher levels of attention and emotion regulation, resulting in increased social-emotional and academic competence. Improving the social-emotional competence of young children may reduce the need for school counseling staff to address minor behavioral problems in the classroom, allowing these professionals to focus on children with more severe behavioral problems, such as those rooted in complex trauma (Holmes, Levy, Smith, Pinne, & Neese, 2015).

Because teachers' depressive symptoms play an important role in the quality of teacher-children relationships, this study also suggests that Head Start programs may benefit from considering the mental health of its teachers. In a study with preschool teachers, researchers demonstrated the impact of teachers' depression on children's social-emotional competences, specifically internalizing and externalizing behaviors (Jeon, Buettner, & Snyder, 2014). Specifically among Head Start teachers, Roberts and colleagues (2016) demonstrated that children in classrooms with teachers who reported higher levels of depressive symptoms experienced significantly lower gains in social-emotional skills. Considering teachers' mental health and well-being has the potential to improve early care and education experiences and child outcomes (Allen, 2015; Jennings, 2014). Head Start programs may wish to consider using their mental health specialists to help recognize and refer for treatment teachers who are suffering from significant depressive symptoms.

Head Start programs may also benefit from considering ways to reduce stress for teachers in the workplace (Whitaker et al., 2015). The Chicago School Readiness Project was designed to improve Head Start teachers' emotionally supportive classroom practices

(Jones, Bub, & Raver, 2013; Li-Grining et al., 2010; Raver et al., 2011; Raver et al., 2009; Raver et al., 2008; Zhai et al., 2011). The intervention consisted of training and coaching of teachers to use classroom behavior management techniques to reduce stress in the classroom. However, it did not involve mindfulness training for stress management. In addition to positive impacts on teacher-child relationship quality (Jones et al., 2013), and classroom emotional climate (Raver et al., 2008), the intervention improved teachers' perceptions of workplace stress (Zhai et al., 2011). Although successful in achieving its targeted outcomes, the intervention was complex, multifaceted, and resource-intensive. Given the need for a cost-effective strategy to reduce workplace stress and improve classroom climate, mindfulness-based interventions may represent one way to not only improve teacher well-being, but also improve teachers' relationships with children and perceptions of workplace stress. At a local and national level, additional support and resources directed toward improving teacher well-being, by increasing teacher dispositional mindfulness, addressing depressive symptoms, and reducing perceptions of workplace stress, could have substantial impacts on teachers' ability to support the needs of children and families in Head Start.

Our findings of moderation by workplace stress have two potential implications for practice. First, the benefits of mindfulness training in reducing teachers' depressive symptoms (and, thereby, reducing teacher-children conflict) may be greatest when workplace stress is high, such as when classroom demands are high owing to challenging behaviors that may arise from children's social disadvantage. At the same time, structural efforts to reduce workplace stress, such as enhancing supervisor and peer support or increasing decisional latitude, might also be required to improve the quality of teachers

relationships with children because the direct effect of dispositional mindfulness on conflict also seems greatest where workplace stress is lower.

The Institute of Medicine and the National Research Council (2015) endorsed all three of these practice implications in their report on *Transforming the Early Childhood Workforce for Children Birth Through Age Eight.* The authors endorse a model that emphasizes relationship quality as most proximal to positive outcomes for young children and put teacher well-being at the center of their model for factors that contribute to quality professional practice. They emphasize the importance of enhancing teacher-child relationships by reducing symptoms of depression, decreasing workplace stress, and providing opportunities for professionals to learn and practice mindfulness in their recommendations for creating effective educators. The current study provides further evidence regarding pathways connecting teachers' well-being and their relationships with children.

We have come to understand the value of teacher-child relationships for children's developing social-emotional competence (Hamre & Pianta, 2001) and of children's early social-emotional competence for lifelong outcomes (Jones et al., 2015). Therefore, we must understand aspects of the Head Start settings that support teachers' well-being and its role in positive teacher-child relationships and children's social-emotional learning. Mindfulness-based interventions for Head Start teachers' may hold promise for improving teacher-children relationships through addressing teachers' well-being (Poulin et al., 2008), with the expectation that high quality relationships with teachers may support outcomes for children.

CHAPTER 4

THE ASSOCIATION BETWEEN DISPOSITIONAL MINDFULNESS AND MANAGEMENT SELF-EFFICACY AMONG EARLY CHILDHOOD EDUCATION MANAGERS IN HEAD START

Abstract

Head Start is a federally-funded early childhood education program whose primary goal is to increase school readiness for low-income children under five years of age. Managers in Head Start programs have stressful jobs. They must adhere to stringent and complex federal program performance standards while addressing the daily needs of children and families facing stressful social circumstances. Dispositional mindfulness is associated with higher self-efficacy in the face of challenges, but there are no data on whether dispositional mindfulness is related to management self-efficacy among leaders of early childhood education programs. In the spring of 2012, the Pennsylvania Head Start Staff Wellness Survey, an anonymous, web-based survey, was administered to managers in 66 Head Start and Early Head Start programs in Pennsylvania. For 480 of the 552 (87%) managers in these programs, data were available on their levels of dispositional mindfulness (Cognitive and Affective Mindfulness Scale-Revised) and management self-efficacy (Principal Self-Efficacy Scale). After controlling for confounders, a 1 SD higher mindfulness score was associated with a 0.41 SD (95% confidence interval [CI], 0.31 to 0.51) higher management self-efficacy score ($p<0.001$). Compared to managers in the lowest quartile of dispositional mindfulness, those in the highest quartile had 1.05 SD (95% CI, 0.79 to 1.30) higher management self-efficacy

score, after adjusting for confounders ($p < .0001$). Among managers in Head Start and Early Head Start, those who had higher levels of dispositional mindfulness reported greater management self-efficacy. Interventions to promote mindfulness among leaders of early childhood education programs may be one approach to improving their management self-efficacy.

Introduction

Head Start is a federally-funded comprehensive early childhood education program. Its primary goal is to increase school readiness among low-income children under five years of age by providing services that enhance early learning, health, and overall family well-being ("Head Start Programs", 2016). Those who hold leadership and management positions in Head Start programs, such as program directors, content areas directors and supervisors, have stressful positions. They must adhere to complex and stringent federal program performance standards ("Head Start Program Performance Standards", n.d.), while supporting program staff in addressing the needs of children and families facing challenging social circumstances, such as homelessness, single-parent households, and limited economic and social resources (Aikens et al., 2010; Bradley & Corwyn, 2002; Brooks-Gunn & Duncan, 1997).

Educational leaders, in general, must have well-developed organizational and management skills to accomplish the overall school- or program-wide goals while addressing their day-to-day responsibilities. Head Start managers, akin to school principals, must provide reflective supervision and instructional leadership, requiring strong interpersonal communication skills. They also manage daily operations, which include supervising, evaluating, and motivating staff; delegating tasks, addressing

behavior problems with children; communicating with parents and guardians, and making financial decisions under constrained budgets. As with school principals (Klocko & Wells, 2015), Head Start managers are also challenged by the need to address frequent changes in legislative mandates designed to improve performance ("New Head Start Program Performance Standards", n.d.). Taken together, these responsibilities can cause role overload in which the demands exceed the time and skills of the leaders (Catano & Stronge, 2006; Wells, 2015).

To help educational leaders meet high job demands, and potentially remediate the impact of job stress on health, managers may find that a promising approach is to support the development of dispositional mindfulness, or the ability to be more mindful in one's daily work. Mindfulness is defined by Kabat-Zinn (2003) as "the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment to moment" (p.145). Mindfulness training has been consistently shown to improve symptoms of depression, anxiety and stress (de Vibe et al., 2012; de Vibe et al., 2013; Greeson et al., 2015; Grossman, Niemann, Schmidt, & Walach, 2004; Hofmann et al., 2010).

In addition to the mental health benefits of mindfulness training, there is also evidence of an association between mindfulness and work functioning among supervisors. For example, supervisor trait mindfulness has been linked to higher levels of employee well-being and work-related performance (Reb, Narayanan, & Chaturvedi, 2014). Additionally, mindfulness training among mid-level health care managers has led to reductions in perceived stress and leadership effectiveness (Wasylkiw, Holton, Azar, & Cook, 2015). Finally, a mindfulness-based stress reduction intervention for financial and

service sector managers reduced perceived stress, negative affect, intensity of somatic complaints and sickness absences and improved positive affect and self-esteem (Żołnierczyk-Zreda, Sanderson, & Bedyńska, 2016). A logical extension of these findings is to determine whether similar associations between mindfulness and work functioning exist among education leaders such as Head Start managers.

Dispositional mindfulness may help educational leaders manage more effectively, particularly in the realm of interpersonal relationships and communication. Educational leaders who are more mindful tend to exhibit steady attention and notice and accept their thoughts, feelings and reactions while withholding judgment (Khanna & Greeson, 2013). This capacity can improve self-regulation and reduce reactivity, which can lead to more effective management under stress (Hölzel et al., 2011; Schussler, Jennings, Sharp, & Frank, 2016; Shapiro, Carlson, Astin, & Freedman, 2006). More mindful managers in schools or early childhood education programs, who have greater self-regulation and less reactivity, may exhibit calmer and more empathetic responses under stress, such as when communicating with upset parents or children or collaborating with teachers facing demand overload or personal stress. More mindful managers may be better able to offer supportive communication to children, parents, and staff (Bihari & Mullan, 2014; Brown & Kasser, 2005), making them feel more valued and respected (Reb et al., 2014) and that their needs are being heard (Wells, 2015). The qualities of awareness, non-judgement, and present focus in those who have dispositional mindfulness may be associated with Head Start managers carrying out their responsibilities more effectively (Wells, 2015).

One dimension of working functioning that may be associated with more productive interpersonal relationships and communication is leadership self-efficacy.

Higher levels of leadership self-efficacy have been linked to better performance of leaders and the units they lead (Paglis, 2010). Self-efficacy refers to one's perceived capacity to effectively engage in behaviors that will result in a desired outcome (Bandura, 1977). Self-efficacy impacts the rigor with which individuals pursue goals and the resilience or persistence they demonstrate when challenges arise (Bandura, 1977, 1986; McCormick, 2001). Leadership self-efficacy, is defined by Paglis & Green (2002) as "a person's judgement that he or she can successfully exert leadership by setting a direction for the work group, building relationships with followers in order to gain their commitment to change goals, and working with them to overcome obstacles to change." (p. 217). This definition emphasizes the critical aspects of relationships in effective management.

There has been little research on self-efficacy among educational leaders, and none to our knowledge, among leaders in early childhood education. School principal self-efficacy, which has been measured differently across a small number of studies (Federici & Skaalvik, 2011), has been associated with principals' persistence and resilience in challenging situations (Tschannen-Moran & Gareis, 2004), teaching quality, and student learning outcomes (Costa-Hernandez, 2010; Smith, Guarino, Strom, & Adams, 2006). Additionally, principal self-efficacy has been shown to improve job satisfaction and reduce burnout in principals (Federici & Skaalvik, 2012). Based on these findings, it is possible that Head Start mangers who have higher levels of leadership self-efficacy will be more effective in interpersonal relationships and communication, and thus be more effective in achieving Head Start's ultimate goal of increasing school readiness for low-income children. Because higher levels of mindfulness are associated

with greater self-efficacy in the face of challenges, such as in addressing substance abuse (Britton et al., 2010), chronic pain (Cusens, Duggan, Thorne, & Burch, 2010; Morone, Rollman, Moore, Li, & Weiner, 2009), coping skills (Luberto, Cotton, McLeish, Mingione, & O'Bryan, 2014) and perceived stress (Ivtzan et al., 2016), it is possible that dispositional mindfulness among Head Start managers could also be associated with higher management self-efficacy, which is one dimension of principal self-efficacy (Tschannen-Moran & Gareis, 2004).

Using data from an online survey of managers in Pennsylvania's Head Start programs, serving 3- and 4-year-old children ("About Head Start", n.d.) and Early Head Start programs, serving infants and toddlers under the age of 3 and pregnant women ("About Early Head Start", n.d.), we examined the hypothesis that higher levels of dispositional mindfulness would be associated with higher levels of management self-efficacy.

Method

Pennsylvania Head Start Staff Wellness Survey

In the spring of 2012, all Head Start and Early Head Start programs in Pennsylvania were invited to participate in the Pennsylvania Head Start Staff Wellness Survey, an anonymous, web-based survey of staff working in the state's Head Start and Early Head Start programs. The survey protocol, which was approved by Temple University's Institutional Review Board, has been previously described (Whitaker et al., 2013) and is briefly summarized below.

At the time of the survey, there were 91 Head Start and Early Head Start programs in Pennsylvania and 66 (72.5%) of these programs agreed to participate in the

survey—37 of 54 (68.5%) Head Start programs and 29 of 37 (78.4%) Early Head Start programs (Whitaker et al., 2013). The survey was developed and hosted by Qualtrics online survey software (Qualtrics, 2011). The research team provided to each program director the location of the online survey along with materials to announce the survey. The program director was then responsible for inviting all members of the program's staff (including part-time staff) to complete the survey at home or at work during the 4 months it was available online. To encourage participation, weekly program-level response rates were sent to program directors. Programs that achieved a final response rate of at least 75% were invited to participate in a raffle in which the program could receive one of six gift cards ranging from $100 to $250 (Whitaker et al., 2013). Of the 552 managers in the 66 participating programs, 496 (89.9%) completed the survey.

Participants

Manager respondents were defined as Head Start staff who met any of the following job descriptions: 1) program directors, 2) coordinators/managers/supervisors in the six core areas of Head Start (education, health, nutrition, family & community partnerships, parent involvement and social services), 3) disability services managers, 4) component directors, 5) home-based supervisors and 6) child development supervisors.

Measures

Dispositional Mindfulness

To assess dispositional mindfulness among the managers, we used the Cognitive and Affective Mindfulness Scale-Revised (CAMS-R) (Feldman et al., 2007). The CAMS-R is a one-factor self-report measure of the disposition or tendency to be mindful in daily life and assesses four components (attention, present-focus, awareness, and

acceptance) that are shared across definitions of mindfulness (Baer et al., 2009; Bishop et al., 2004; Kabat-Zinn, 2003). The 12-item scale contains three items for each component of mindfulness. Respondents were asked to assess how much each item (e.g., "It is easy for me to concentrate on what I am doing", "I am able to focus on the present moment", "I try to notice my thoughts without judging them" and "I can accept things I cannot change") applied to how they relate to their thoughts and feelings. Items were scored on a four-point Likert-type scale ranging from "Rarely/Not at all" to "Almost Always" and summed to create a total possible score ranging from 12-48, with higher scores indicating a more mindful disposition or tendency towards higher levels of non-judgmental attention and awareness in the present moment. The internal consistency (Cronbach's alpha) of the CAMS-R in the current sample was 0.85.

Management Self-Efficacy

To assess the construct of management self-efficacy, we used the 6-item efficacy for management subscale from the Principal Self-Efficacy Scale (Tschannen-Moran & Gareis, 2004). This subscale assesses the perceived self-efficacy of the respondent to manage competing demands, stressors and organizational aspects of the job. We asked managers to think about "goals you might have as a manager, supervisor or coordinator" and "the extent to which you think you can accomplish these goals." The 6-items had a 9-point Likert type scale response option set ranging from "Not At All" to "A Great Deal" with possible scores ranging from 6 to 54 and higher scores indicating a greater sense of self-efficacy related to management. The six items used to assess management self-efficacy were 1) "*Handle the time demands of the job?",2) "Maintain control of your own daily schedule?", 3) "Shape the operational policies and procedures that are*

necessary to manage your program?", 4) "Handle the paperwork required of the job?", 5) "Cope with the stress of the job?" and 6) "Prioritize among competing demands of the job?". In the third item, we used the word "program" instead of "school" to make the question more applicable to Head Start managers. The Cronbach's alpha for our modified version of the efficacy for management sub scale in the current sample was α=0.85.

Covariates

We measured 9 characteristics of managers that had the potential to confound the key association of interest between dispositional mindfulness and management self-efficacy. To minimize concerns among respondents about deductive disclosure, these characteristics were all assessed in the survey using categorical measures. These variables included the following: sex, age, race/ethnicity, education, relationship status, whether the manager's own child had attended Head Start, and years of experience working in early childhood education. Additionally, participants were asked (yes/no) if they had experienced either of two economic hardships over the past year: 1) "did not pay the full amount of the gas, oil or electricity bill" and 2) "did not have enough money to pay for health care and/or medicines that you or your family needed".

Data Analyses

Our analyses were restricted to 480 (87.0%of 552) managers who had complete data on the two key study variables (dispositional mindfulness and management self-efficacy). The goal of our analysis was to determine if higher levels of dispositional mindfulness among managers was associated with higher management self-efficacy. Statistical analyses were conducted using Stata/SE (v 13) (StataCorp, 2013).

To assist with the interpretation of our results, the continuous measures of dispositional mindfulness and management self-efficacy were standardized as *z* scores. T-tests and one-way analysis of variance were then used to assess how the key independent (dispositional mindfulness *z*) and dependent (management self-efficacy *z*) variables were related to each of the 9 categorical covariates that might potentially confound the relationship between mindfulness and management self-efficacy.

Ordinary least squares regression was used to examine the relationship between dispositional mindfulness *z* and management self-efficacy *z.* To account for shared variance at the program level, we used Taylor series linearization methods for all regressions (Heeringa et al., 2010). The unadjusted model examined the relationship between dispositional mindfulness *z* and management self-efficacy *z* before entering covariates into the model. Only variables that were related ($p<.25$) to both our independent (dispositional mindfulness *z*) and dependent (management self-efficacy *z*) variables were considered potential confounders and were added to the adjusted model.

Results

Nearly all participants were female (94.3%; $n=448$), almost three-quarters were married (70.91%; $n=339$), and over three-quarters reported having obtained a bachelor's degree or education beyond a bachelor's degree (81.4%; $n=389$; Table 7). The mean (standard deviation) for management self-efficacy (outcome) and dispositional mindfulness (key predictor) raw scores were 39.6 (7.5) and 34.9 (5.7), respectively, and both scores had a statistically normal distribution.

Table 7 Manager Characteristics (N=480)

Characteristic	*n* (%)
Sex	
Male	27 (5.7)
Female	448 (94.3)
Age, y	
18-29	19 (4.0)
30-39	117 (24.8)
40-49	131 (27.8)
≥50	204 (43.3)
Non-Hispanic White	
Yes	427 (89.7)
No	49 (10.3)
Education	
High school or GED	28 (5.9)
Associate's degree	61 (12.8)
Bachelor's degree or higher	389 (81.4)
Relationship status	
Married	339 (70.9)
Cohabitating	35 (7.3)
Other	104 (21.8)
Not enough money for utilities	
Yes	88 (18.4)
No	391 (81.6)
Not enough money for healthcare	
Yes	65 (13.6)
No	414 (86.4)
Own child attended Head Start	
Yes	67 (14.0)
No	411 (86.0)
Work experience in ECE, y	
0-3	42 (8.9)
4-10	105 (22.3)
11-20	154 (32.7)
>20	170 (36.1)

Notes: Across levels of a characteristic, the percentages may not add to 100.0% due to rounding. The number of participants does not add to 480 where there are missing data on the characteristic. The instruments were as follows: Mindfulness, Cognitive and Affective Mindfulness Scale-Revised; Efficacy for Management: modified efficacy for management sub scale of the Principals' Sense of Efficacy Scale.

Of the 9 manager characteristics examined (Table 8), not enough money for utilities and not enough money for healthcare were associated with both lower dispositional mindfulness and lower management self-efficacy ($p<.25$). Lower levels of

mindfulness were reported among younger managers, who also had fewer years of experience in early childhood education. Higher levels of mindfulness were reported among those who were married. Lower levels of management self-efficacy were reported among those with a high school diploma/GED compared to those with higher levels of education.

Table 8 Relationships Of Manager Characteristics To Mindfulness And Management Self-Efficacy

	Mindfulness *Z*				**Management Self-Efficacy *Z***			
Characteristic	***M (SD)***	***F/t***	***df***	***p***	***M (SD)***	***F/t***	***df***	***p***
Sex								
Male	-.10 (1.3)	-.49	473	.63	-.06 (1.5)	-.32	473	.75
Female	.00 (.98)				0 (.97)			
Age, y								
18-29	-.11 (.74)	6.37	470	<.001	.19 (.91)	0.46	470	.71
30-39	-.32 (.92)				.06 (.93)			
40-49	.01 (1.0)				-.04 (.98)			
≥50	.18 (1.0)				-.01 (1.1)			
Non-Hispanic White								
Yes	.01 (.98)	-.42	474	.68	.01 (.95)	-.34	474	.74
No	-.06 (1.1)				-.04 (1.4)			
Education								
High school or GED	.13 (1.0)	.26	477	.77	-.33 (.98)	2.67	477	.07
Associate's degree	0.1 (.93)				.20 (.92)			
Bachelor's degree or higher	-.01 (1.0)				0 (1.0)			
Relationship status								
Married	.08 (.99)	3.52	477	.03	-.04 (.99)	.98	477	.38
Cohabitating	-.21 (.83)				.02 (.92)			
Other	-.18 (1.0)				.12 (1.1)			
Not enough money for utilities								
Yes	-.24 (.97)	2.48	477	.01	-.12 (1.0)	1.2	477	.23
No	.05 (1.0)				.03 (1.0)			
Not enough money for healthcare								
Yes	-.26 (.96)	2.27	477	.02	-.21 (1.0)	1.81	477	.07
No	.04 (1.0)				.03 (1.0)			
Own child attended Head Start								
Yes	-.23 (.95)	2.12	476	.03	-.05 (.95)	.39	476	.70
No	.04 (.99)				.01 (1.0)			
Work experience in ECE, y								
0-3	-.30 (1.1)	2.83	470	.04	.02 (1.2)	.61	470	.61
4-10	-.11 (.98)				.07 (.98)			
11-20	.01 (.97)				-.08 (.98)			
>20	.14 (.98)				.04 (.98)			

Notes: Test statistics (F/t), degrees of freedom (*df*), and *P* values are for a one-way analysis of variance or independent sample t-tests. Degrees of freedom (*df*) for one-way analysis of variance tests represent total *df*. GED, passed General Education Development Test

After accounting for shared variance at the program level but before adjusting for covariates, mindfulness *z* significantly predicted management self-efficacy *z*, β=.42, $t(478)=8.38$, $p<.001$ and explained a significant proportion of variance in management self-efficacy *z* scores, $R^2=.17$, $F(1,43)=70.20$, $p<.001$. This significant association persisted, β=.41, $t(475)=8.30$, $p<.001$ after controlling for inadequate money for utilities and healthcare, $R^2=.17$, $F(3,41)=23.47$, $p<.001$. Compared to managers in the lowest quartile of dispositional mindfulness (Figure 7), those in the highest quartile had 1.05 SD (95% confidence interval, .79 to 1.30) higher management self-efficacy score, after adjusting for confounders ($p <.0001$).

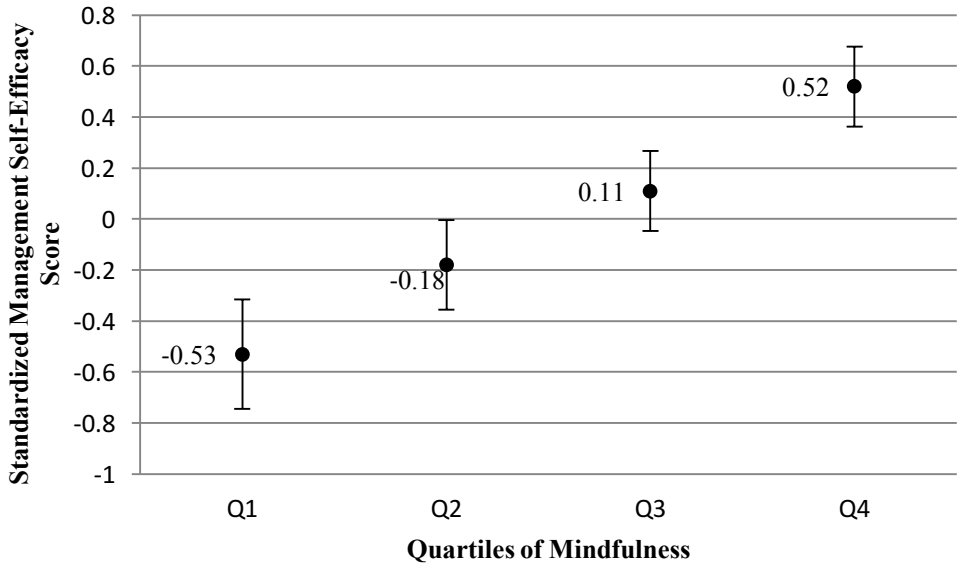

Figure 7. Adjusted Mean Management Self-Efficacy *Z* Score With 95% Confidence Intervals Across Each Quartile Of Mindfulness *z* (n=479). Model adjusted for not enough money for utilities and not enough money for healthcare.

Discussion

In this cross-sectional study of 480 managers working in 66 Head Start and Early Head Start programs in Pennsylvania, those who reported higher levels of dispositional

mindfulness reported higher levels of management self-efficacy, reflecting a greater perceived ability to address competing demands, cope with stressors and manage organizational aspects of their job. To our knowledge, this is the first study to examine how mindfulness is related to management self-efficacy among those leading or managing any early childhood, elementary or secondary education program.

Educational leaders, such as Head Start managers, who have higher levels of dispositional mindfulness and demonstrate the competencies of emotional intelligence (Goleman, 1998) may develop resonant leadership (Boaytzis & McKee, 2005), a leadership style that fosters hope and compassion through relationships with others. Resonant leaders listen to the important aspects of other's lives, respond with enthusiasm, and build relationships grounded in mutual trust and respect (Boyatzis, Smith, Van Oosten, & Woolford, 2013). Under stressful circumstances, resonant leaders may be inclined to flourish rather than merely cope (Boaytzis & McKee, 2005). Under the stress of their demanding positions, Head Start managers with greater dispositional mindfulness may be better able to connect or resonate with other staff members, children and families and be more effective managers and leaders.

In the educational setting, mindfulness-based interventions have recently been used to improve teacher well-being (Lomas et al., 2017; Meiklejohn et al., 2012) and student outcomes (Institute of Medicine, 2015; Singh, Lancioni, Winton, Karazsia, et al., 2013). Educational leaders, including Head Start managers, may also benefit from mindfulness- based interventions. These interventions might be tested for their ability to reduce perceived job-related stress, improve management-self efficacy, and, ultimately, attain the goals of educational institutions.

The topic of mindful leadership in education (Wells, 2015) has arisen to address the stressful nature of leadership positions in this field (Wells, 2013). In her conceptualization of mindful leadership in schools, Wells (2015) discusses the importance of emotional intelligence. The competencies of emotionally intelligent leaders, such as self-awareness (awareness of emotions and the effect they have on others), self-management (emotional self-control and flexibility), and social awareness (empathy) are all supported by having dispositional mindfulness (i.e. attention, present-focus, awareness, and acceptance) (Goleman, Boyatzis, & Mckee, 2002).

The study has several limitations, including sources of potential report bias. All the data were self-reported and cross-sectional. We collected data only from the managers and did not assess any employee reports of their managers' effectiveness. As with all surveys of behaviors and attitudes, measurement bias is possible (Schwarz, 1999). For example, managers who reported higher levels of mindfulness may have perceived their management effectiveness to be higher than what their employees or an impartial observer might have reported. Our findings may also be subject to common method bias, specifically, common rater effects, because the managers provided the information on all the study variables (Podsakoff et al., 2003). Non-response bias could have affected our results if the respondents differed from non-respondents in ways that modified the association between mindfulness and management self-efficacy. Because the survey was anonymous, we could not directly compare the characteristics of responding and non-responding managers. Although the survey was implemented across the state of Pennsylvania, the results may have limited generalizability to all Head Start programs or to other educational settings.

Furthermore, we cannot determine from this cross-sectional study whether higher levels of manager mindfulness are the cause of higher management self-efficacy. Therefore, our study can only suggest that greater levels of dispositional mindfulness among managers are associated with higher perceptions of management self-efficacy. However, our data are consistent with others in showing a positive association between mindfulness and measures of self-efficacy in the face of challenge (Britton et al., 2010; Cusens et al., 2010; Ivtzan et al., 2016; Luberto et al., 2014; Morone et al., 2009).

Future research with early childhood educational leaders should replicate our findings using a longitudinal study design, while also evaluating the potential mechanisms by which dispositional mindfulness may impact management self-efficacy and assessing whether management self-efficacy is associated with observed measures of effective leadership. Luberto et. al (2014) proposed that mindfulness may lead to greater self-efficacy by increasing one's sense of self-control and autonomy (Brown & Ryan, 2003; Luberto, McLeish, Zvolensky, & Baer, 2011). Alternatively dispositional mindfulness may improve management self-efficacy through improved emotion regulation, which reduces the perceived intensity of distress, supports emotional recovery, and promotes goal-directed behaviors (Roemer, Williston, & Rollins, 2015). Thus, more mindful educational leaders, under stressful circumstances, may have a greater management self-efficacy because they have a greater sense of self-control and autonomy or better emotion regulation. Mindful Head Start managers with greater management self-efficacy may possess the leadership skills necessary to engage in productive interpersonal relationships with staff, children and families to help meet the overall Head Start goals of child social emotional competence and school readiness.

CHAPTER 5

CONCLUSION

Summary of Findings

In each of the three Head Start staff positions examined, home-based visitors, classroom teachers, and managers, greater dispositional mindfulness was associated with higher levels of work-related functioning. Among home-based visitors, greater mindfulness was associated with a stronger working alliance with parents; among teachers, it was associated with higher quality relationships with children; and among managers, it was associated with greater management self-efficacy. Because Head Start, like other human service organizations, relies on interpersonal interactions to achieve its' goals, these organizations may more often be successful when staff members report higher quality relationships with clients, and when managers are more efficacious in managing the staff. The key findings across the three papers are reviewed below.

Home-Based Visitors

1. Among 307 Head Start and Early Head Start home visitors, those with higher dispositional mindfulness reported a stronger working alliance with parents, reflecting higher levels of mutual trust and shared goals for home visiting. This association between mindfulness and working alliance was mediated, in part, by greater levels of psychological well-being among home visitors who were more mindful.

Classroom Teachers

1. Among 1,001 Head Start teachers, those with higher dispositional mindfulness reported higher quality relationships with the children in their classrooms (less conflict and greater closeness).
2. The association between higher mindfulness and lower relational conflict was partially mediated by depressive symptoms, such that more mindful teachers experienced lower levels of depressive symptoms and, in turn, less conflict in their relationships with the children in their classrooms.
3. The association between higher dispositional mindfulness and lower relational conflict was also moderated by teachers' perceptions of workplace stress. This moderated mediation occurred along two pathways. In the direct pathway, the association between greater dispositional mindfulness and less conflict was stronger when teachers perceived lower levels of workplace stress. In part of the indirect pathway, the association between greater dispositional mindfulness and lower depressive symptoms was strongest when teachers perceived higher levels of workplace stress.

Managers

1. Among 480 Head Start and Early Head Start managers, those with higher dispositional mindfulness reported greater management self-efficacy, reflecting a greater perceived ability to address competing demands, cope with stressors and manage organizational aspects of their job.

Limitations

The studies presented across the three papers have several limitations, including sources of potential bias. All data from the Pennsylvania Head Start Staff Wellness Survey were self-reported and cross-sectional. We collected data only from staff members and not from any parents or children. As with all surveys of behaviors and attitudes, measurement bias is possible (Schwarz, 1999). The studies' findings may also be subject to common method bias, specifically, common rater effects, because the staff members provided the information on all the study variables (Podsakoff et al., 2003). In the home visitor and teacher studies, the cross-sectional nature of the data may have also biased our estimate of the mediating effect (Maxwell & Cole, 2007). Additionally, although considerable theoretical evidence is presented in the teacher study regarding the plausibility of dispositional mindfulness acting as an independent variable, it is also entirely possible that dispositional mindfulness could act as a mediator variable with depressive symptoms acting as the independent variable. The cross-sectional nature of the data precludes the formal testing of these directional associations. Non-response bias could have affected our results if the respondents differed from non-respondents in ways that modified the association between the key exposure (dispositional mindfulness) and the key outcomes (working alliance inventory, student-teacher relationships and management self-efficacy). Because the survey was anonymous, it was not possible to directly compare the characteristics of responding and non-responding staff members. Although the survey was implemented across the state of Pennsylvania, the results may have limited generalizability to all Head Start and Early Head Start programs or to other models of early childhood education services

Summary

Mindful individuals have better self-control and emotion regulation, a greater sense of autonomy and may feel that they have more control over the outcome in stressful situations (Brown & Ryan, 2003; Luberto et al., 2014; Luberto et al., 2011; Shapiro et al., 2006). For a variety of human service professionals, mindfulness-based interventions have demonstrated improvements in well-being and reductions in perceived stress, anxiety and job burnout (Bazarko et al., 2013; Harker, 2016; Jennings et al., 2017; Poulin et al., 2008; Wasylkiw et al., 2015; Żołnierczyk-Zreda et al., 2016). Staff members in Head Start programs, serving children and families who experience difficult social circumstances often deeply rooted in poverty, may be better able to deliver high quality services and meet the needs of those experiencing distress when their reactions to stressful situations are calm and deliberate.

A human service organization whose staff has greater levels of dispositional mindfulness may be more responsive to the traumatic stress that is often experienced by those they serve (Bloom, 2010). Trauma-informed human service delivery is quickly gaining momentum as a holistic approach to serving clients in distress ("Resource Guide to Trauma-Informed Human Services", n.d.; "Trauma-Informed Approach and Trauma-Specific Interventions", n.d.). For example, the Sanctuary Model is rooted in creating a culture of healing, where staff members are emotionally available to each other and their clients, which fosters positive relationships and creates an organizational environment that encourages resilience (Esaki et al., 2013). Not only does such a human service delivery model have the potential to benefit clients (i.e. children and families in the context of Head Start) but also the staff (i.e. human service professionals) who

themselves experience burnout and psychological distress (Harker, 2016) which may be the result of past traumatic experiences (Perry, Pollard, Blakley, Baker, & Vigilante, 1995; Centers for Disease Control and Prevention, 2010). Staff with a more mindful disposition who experience more productive interpersonal relationships with other staff, children and families may be well positioned to integrate an effective trauma-informed service delivery model into their existing human service organization. Interpersonal relationships grounded in empathy and collaboration between providers and patients in the context of clinical medicine and other health professions have been consistently associated with more accurate diagnoses, greater compliance, greater patient satisfaction with their providers and improved clinical outcomes (Hojat, 2016; Wasserman, Inui, Barriatua, Carter, & Lippincott, 1984).

Mindfulness based interventions may represent one form of staff training that has the potential to improve work-related functioning, interpersonal relationships and organizational culture in human service organizations. While in-person mindfulness based training may be more favorable for coaching these skills, mindfulness-based interventions delivered online and through teleconferencing may represent a more cost effective and scalable intervention for large human service organizations (Bazarko et al., 2013; Wolever et al., 2012). Cultivating the skills of awareness, attention, present focus, and non-judgement may provide Head Start staff, and human service professionals in general, with the tools to slow down the pace of their stressful work environments, process the pressures they feel in their daily work or personal lives, understand the reaction they experience to those pressures, and accept the reaction that occurred. Once this skill has been refined, calm and intentional responses to seemingly insurmountable

stressors can be more deliberately thought through and implemented. It is through this process that Head Start staff, or any human service professional whose impact on clients is heavily influenced by interpersonal relationships, can respond more empathetically to those they serve. In the context of Head Start, this translates to interactions with children and families living in difficult social circumstances, with the ultimate goal of improving school readiness.

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APPENDIX A

PERMISSION TO INCLUDE PUBLISHED PAPER IN DISSERTATION

The paper presented in Chapter 2 titled "Mindfulness among Home Visitors in Head Start and the Quality of their Working Alliance with Parents" was originally published in the *Journal of Child and Family Studies* (citation below). This appendix contains documentation of Brandon D. Becker's continued privileges, despite having transferred copyright to the *Journal of Child and Family Studies*, to include this first authored manuscript in his doctoral dissertation.

Becker, B. D., Patterson, F., Fagan, J. S., & Whitaker, R. C. (2016). Mindfulness among Home Visitors in Head Start and the Quality of Their Working Alliance with Parents. *Journal of Child and Family Studies*, *25*(6), 1969-1979.

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APPENDIX B

LETTER FROM KATHLEEN C. GALLAGHER, PHD

Below is a short letter from Kathleen C. Gallagher, PhD, describing the nature of our collaboration on the paper presented in Chapter 3 titled “Teachers’ dispositional mindfulness and the quality of their relationships with children in Head Start classrooms”.

University of Nebraska Kearney

COLLEGE OF EDUCATION
Department of Teacher Education

March 6, 2017

Graduate Board
Temple University
Philadelphia, PA

Re: Teachers' dispositional mindfulness and the quality of their relationships with children in Head Start classrooms

Dear Graduate Board Members:

I am writing to describe the nature of my collaboration with Brandon D. Becker, a doctoral candidate in the Department of Social and Behavioral Sciences in the College of Public Health at Temple University. Brandon's Dissertation Advisory Committee Chair, Dr. Robert C. Whitaker, and I are research collaborators, and have worked together on several other scientific manuscripts and grant submissions. At Dr. Whitaker's suggestion, Brandon invited me to join Dr. Whitaker in an advisory and mentoring role for his dissertation. The purpose of this role was to help Brandon appropriately frame the above named paper for the audience of the *Journal of School Psychology*. Brandon served as the primary author and was responsible for the design, analysis and interpretation of the results presented in the paper. He was wholly responsible for the scholarship in the project; I provided supports related to framing his introduction and discussion for the educational psychology framework of the journal. I am honored to have been able to support Brandon's academic and career goals, with particular emphasis on professional collaboration in the realm of scholarship.

Please feel free to contact me if you have any questions.

Sincerely,

Kathleen Cranley Gallagher, Ph.D.
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