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Preschool Teachers' Emotional Exhaustion in Relation to Classroom Instruction and Teacher-child Interactions

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Abstract

The present investigation examined the links between preschool teachers' self-reported emotional exhaustion (n = 117) with the quality of their classroom interactions and the dosage and rigor of their instruction. *Research Findings*: Although teachers' experience of emotional exhaustion was not associated with the dosage and rigor of instruction, more emotionally exhausted teachers demonstrated lower quality interactions with children in their classroom. Additionally, there was some evidence to suggest that the association between emotional exhaustion and preschool teachers' classroom interactions was dependent on their years of education, such that the relation between teachers' education and their interactions with children was reduced when they described themselves as more emotionally exhausted. *Practice or Policy:* Taken together, these results suggest that supporting preschool teachers' well-being, and in particular helping minimize emotional exhaustion, may be a beneficial strategy to foster a higher quality classroom environment.

Keywords: preschool teachers; emotional exhaustion; quality of classroom interactions; dosage and rigor of instruction

Preschool Teachers' Emotional Exhaustion in Relation to Classroom Instruction and Teacher-child Interactions

Concerns regarding the impacts of preschool for young children have resulted in increased attention to the teachers who work in these programs (Phillips et al., 2016; Yoshikawa et al., 2013). Although for many years the field of developmental and educational science has attended to factors such as teachers' qualifications (e.g., education and years of experience) or structural features of programs (e.g., teacher–child ratio; Early et al. 2007) as drivers of children's learning, in recent years the focus of policy and program investments has shifted to describing, measuring, and improving preschool teachers' classroom practices as a means of elevating the impact of program enrollment on child outcomes (Yoshikawa et al., 2013). Accordingly, identifying factors that influence preschool teachers' classroom practice, such as teacher knowledge, skills training, or background experiences has been of interest in an effort to create effective professional development and training.

In the context of this shift in focus to understanding the processes shaping teacher practice, the focus has largely been on drivers of instruction, with the aim of accounting for children's early learning outcomes. However, less attention has focused on the role of teachers' emotional states, stress, and workplace experiences, despite indications that such factors may suppress teachers' capabilities (Author, 2004; Jennings, 2015; Roberts et al., 2016). This lack of attention to teachers' emotional states is in contrast to much recent empirical work establishing the value of certain emotion-management practices such as mindfulness (Jennings, 2015) and prior work that linked caregivers' negative affect to increased harshness in their interactions with children (Authors, 2004). The present study addresses this gap in knowledge concerning processes influencing preschool teachers' practices by focusing on teachers'

feelings of emotional exhaustion, which represents one of the core components of well-being (Aldrup et al., 2018; Maslach et al., 1999, 2001; Skaalvik & Skaalvik, 2010) and is closely tied to studies of teacher stress (Jennings, 2015), a longstanding concern within the educator profession (de Heus & Diekstra, 1999; Institute of Medicine, 2015).

The field conceptualizes emotional exhaustion as a state that may play a role in regulating teachers' responsiveness and emotional availability toward children (e.g., Maslach et al., 1999, 2001). However, there is little indication of links between emotional exhaustion and other forms of classroom practices, such as the amount of time devoted to instruction or the rigor of instruction, despite the demonstrated importance of these for children's learning and the fact that these practices may require greater attention and energy from the teacher. Moreover, it is also the case that both teachers' emotional exhaustion and their classroom practices may be influenced by teacher training and experience (Author, 2015), thus attention to these factors is also warranted. Accordingly, the present investigation uses data from 117 preschool teachers to consider the pathways through which emotional exhaustion shapes children's experiences and whether certain teachers are better able to regulate their emotional states.

Teachers' Emotional Exhaustion

Teacher emotional exhaustion is a complex construct and experience, often characterized by a lack of energy and a feeling that one's emotional resources are used up (Cordes & Dougherty, 1993; Maslach & Leiter, 2008). One commonly used measure to capture emotional exhaustion is the Maslach Burnout Inventory (MBI; Maslach et al., 1986). The MBI includes three distinct dimensions: Emotional exhaustion, depersonalization, and personal accomplishment. Scholars argue that emotional exhaustion is the most critical component of the MBI because it is the first step in the development of burnout, that in turn, leads to higher levels

of depersonalization and reduced feelings of personal accomplishment (e.g., Byrne, 1994; Maslach et al., 1996, 2001), and increased disengagement and negativity (Author, 2004).

Theoretical models of emotional exhaustion and well-being contend that occupation stressors or requirements that demand persistent exertion of physical, psychological, or emotional effort, results in stress when individuals' resources are exceeded (e.g., Maslach & Leiter, 1999; Jennings & Greenberg, 2009). For teachers, the psychological and emotional effort required to engage effectively with children is an oft-mentioned source of stress and exhaustion, that has been implicated in their negativity and disengagement from interactions in the classroom (Jennings, 2014). Consequently, emotional exhaustion has the potential to contribute to both teachers' and children's classroom experiences.

Some models posit that as teachers' emotional exhaustion rises, their levels of classroom preparation and engagement in the classroom decline and, in response, children are likely to be less engaged (Maslach & Leiter, 1999) with implications for school success. For example, Arens and Morin (2016) found that fourth graders whose teachers were more emotionally exhausted demonstrated a lower likelihood of mastery of course content and achievement. Other studies have shown that teachers' stress and emotional exhaustion also relate to greater levels of conflict with children in the classroom (Whitaker et al., 2015) in addition to less optimal socio-emotional adjustment (Jeon et al., 2019). In terms of consequences for teachers, emotionally exhausted teachers have been found to demonstrate lower levels of motivation toward teaching (Hakanen et al., 2006), greater levels of doubt regarding their ability to teach effectively (Dicke et al., 2015; Evers et al., 2002; Schwarzer & Hallum, 2008; Skaalvik & Skaalvik, 2010), and lower commitment to the profession (Buettner et al., 2016; Skaalvik & Skaalvik, 2016).

Taken together, these findings suggest that teachers' emotional exhaustion has consequences for children's social and academic success, likely as a function of students' exposure to the expressions of exhaustion in teachers' classroom practices. With that said, it remains unclear the extent to which emotional exhaustion has differential consequences for the assortment of classroom practices in which teachers engage daily. As an example of one such pathway, more emotionally exhausted teachers may be less attentive to children's emotional needs and more likely to be less responsive or more negative in their interactions with children (Jennings, 2014; Jennings & Greenberg, 2009). Alternatively, emotional exhaustion may take its toll on teachers' motivation or energy to engage in instruction, such that they may withdraw from classroom interactions and children receive less instruction. Or it could be the case that teachers experiencing emotional exhaustion devote less time to preparation for daily instructional activities and so while they continue to provide basic instruction, the quality and rigor of the experiences they provide to students is compromised.

In sum, when teachers are more emotionally exhausted, they may have greater difficulty managing classroom dynamics and their classroom environments may be less stimulating and provide fewer affordances for learning, thereby resulting in less optimal outcomes among children in their classroom. To evaluate empirical support for these three pathways through which emotional exhaustion may be expressed in teachers' classroom practice, the present investigation considers the extent to which preschool teachers' emotional exhaustion is associated with three components of teachers' practice: (a) the dosage and rigor of teachers' academic instruction (i.e., the time spent, and level of, classroom academic content), (b) teachers use of different activity settings to deliver instruction (i.e.,., one on one instruction, teacher directed whole group, small group, and free play), and (c) the quality of teacher-child

interactions, which represent three key educational opportunities within the classroom that are associated with children's academic and socioemotional development (e.g., Authors, 2018a; Claessens et al., 2014; Clarke-Stewart & Allhusen, 2005; Connor et al., 2006; Early et al., 2007; Fuligni et al., 2012).

Variation in the Links between Teachers' Emotional Exhaustion and Classroom Practices

An additional point of consideration is the extent to which differences in classroom practices among emotionally exhausted teachers vary systematically as a function of factors that might play a role in buffering these potentially negative effects on practice, such as levels of their education or experience. The focus on teachers' qualifications reflects the fact that most teachers do not receive adequate training to cope with the stress and demands of classroom teaching (Schonert-Reichl et al., 2017) and that such training may play a role in reducing stress and its expression in the classroom. Because studies find mixed evidence on the importance of teacher qualifications (e.g., a college/university degree) for classroom practices, children's early learning, or teachers' own well-being (Croninger et al., 2007; Early et al., 2007; Jeon et al., 2018) the present study's focus on how such qualifications interact with teachers' emotional states in predicting their classroom practices.

Scholars argue that teachers' classroom practices are influenced by the interplay of teachers' professional experiences and their emotional well-being (Rimm-Kaufman & Hamre, 2010), particularly in the context of classrooms with greater demands. For example, Authors (2018b) found that the negative effects of classroom age diversity in preschool classrooms on teacher-child interactions were prevalent only among teachers with fewer years of education and experience, suggesting that more educated and experienced teachers may have certain knowledge or expertise that enables them to manage challenging classrooms more

effectively. Other scholars have also found that more educated and experienced teachers are more capable of dealing with children's challenging behaviors and are generally less stressed (Friedman-Krauss et al., 2014; Jeon et al., 2018). And from a somewhat related perspective, two separate intervention studies show that additional in-service training (not specifically targeting teacher stress) reduces the negative impacts of stress (assessed as cortisol levels) under circumstances of highly demanding classrooms (Authors, 2008) or students (Authors, 2017).

When taken together, this pattern of results appears to suggest that more educated and experienced teachers may be more capable of coping with their emotional state of exhaustion, and consequently their emotional well-being may be less strongly linked with their classroom practices. The above may be attributed to the fact that the skills gained through prior education and experience provide preschool teachers with specific strategies to promote a more positive and developmentally appropriate classroom, even in the face of emotional exhaustion. For example, more educated and experienced teachers may be better able to regulate their emotions without disengaging from the classroom (Day & Leitch, 2001; O'Connor, 2008).

The Current Study

The current study examines associations between preschool teachers' emotional exhaustion and their classroom practices. Two research questions are addressed: (1) To what extent is teacher emotional exhaustion associated with the: (a) delivery (dosage and rigor) of instructional content, (b) use of different activity settings to deliver instruction, and (c) quality of their interactions with children in their classroom; and (2) Do teachers' education and experience buffer them from the generally negative effects of emotional exhaustion? It was hypothesized that more emotionally exhausted teachers would demonstrate lower quality interactions (see also: Jennings, 2014; Jennings & Greenberg, 2009). However, the remainder of our research

questions are relatively exploratory given that the extant literature on teachers' emotional exhaustion has not considered the links with their classroom practices nor the buffering roles of their own educational and work experiences.

Methods

The present investigation draws on data from a large and linguistically diverse county in a mid-Atlantic state in the United States that serves over 186,000 students from pre-K through 12th grade. Teachers were recruited from the entire population of school and community-based preschool program classrooms in the county. All teachers in the public-school program were eligible; however, in community programs teachers were eligible if they taught at a classroom in which more than five publicly-funded preschool children were enrolled. In total, 156 lead teachers and their classrooms were initially recruited (100 from public schools, 56 from community programs). Teachers who opted to participate returned consent forms to enroll in the study. Of the 156 recruited teachers, 138 met eligibility requirements and were formally enrolled in the study. A small subset of these teachers opted not to participate in teacher-level data collection, and thus, the number of study participants was 117 from 71 different schools and centers. Lead teachers averaged 16.86 years of education (39% had a degree in early childhood education) and had 15.68 years of teaching experience. In terms of the study classrooms, there was an average of 16.86 children per classroom. Teachers reported that 51% of their classroom children were boys, 56% had limited English proficiency, and 8% had special needs.

Data Collection Procedures

Data were collected through classroom observations and surveys. Observations were conducted on up to three separate occasions during the preschool year (M = 2.72, SD = .49; 2% had one observation; 25% had two observations; 73% had three observations) by fifteen data

collectors who had at least a bachelor's degree while teacher surveys were administered in the fall and spring. During observations, data collectors observed classrooms across the morning from the start of the school day to lunchtime, alternating between assessing the quality of teacher-child interactions with the Classroom Assessment Scoring System (CLASS) and the content and dosage of instruction using the Behavioral Coding System (BCS). The BCS, although a new instrument, was informed by the NICHD SECCYD Classroom Observation System and Observational Record of the Caregiving Environment (McCartney et al., 2007) and by the work of Ritchie and colleagues (2001). Teachers completed a survey in the fall and spring reporting their demographic characteristics and experience, as well as attitudes and beliefs. For descriptive statistics for focal study variables and covariates, see Table 1 and for a correlation matrix of the focal variables of interest, see Table 2.

Measures

Teacher report of emotional exhaustion. At the beginning of the school year, teachers reported on their emotional exhaustion using the MBI (Maslach et al.,1986). As part of the MBI survey, teachers were asked to indicate how strongly they agreed with six items on a 1 (*never*) to 7 (*everyday*) scale. Items included: I feel emotionally drained from my work; I feel fatigued when I get up in the morning and have to face another day on the job; I feel burned out from my work; I feel frustrated by my job; I feel I'm working too hard on my job; and I feel like I'm at the end of my rope. The emotional exhaustion scale demonstrated good reliability ($\alpha = .87$).

Behavioral Coding System (BCS). The BCS observations focused on capturing information in four general areas of experience, namely: (a) activity setting, (b) instructional content, (c) teacher behaviors, and (d) child behaviors. This study focused on the first two codes, which are discussed below. It is important to note that the BCS is designed to provide an

estimate of the experience of a *typical* child in the classroom. Thus, each observation cycle focused on a different child randomly selected from the participating children in the classroom, and scores were aggregated across cycles and then days to create classroom-level indicators for the different dimensions observed. BCS scores represent the proportion of intervals that target children were observed to experience each type of code. Options for coding activity setting (e.g., whole group, free play) and instructional content (e.g., literacy, math) were mutually-exclusive, such that one code (and only one code) was assigned for each item during each cycle, representing the child's experience for the majority of that interval. During each classroom visit, there were 10 BCS cycles coded, which included one-minute intervals (30 seconds to observe, 30 seconds to code).

In order to implement the BCS, data collectors were required to complete a 1.5-day training, which included learning the codes and coding multiple master-coded videos. All data collectors were required to take and pass a reliability test, which involved coding five cycles (50 30-second intervals) from video with 85% or greater accuracy. All data collectors passed on the first attempt. Moreover, a quarter of classrooms were double coded in the fall and spring. Results from these double coding sessions suggest that coders agreed on 87-88% of all BCS codes, yielding a Cohen's Kappa of .50, indicating moderate agreement (Altman, 1991); Kappa increases to .58 if the very low frequency behaviors were omitted. With that said, the Kappa's for the BCS codes used in the present investigation was .78.

BCS activity settings. In each cycle of BCS observation, the focal child for that cycle was classified in an activity setting. Teacher-directed activities was a combination of whole group activities where children were part of an organized activity that included all or most of the class (e.g., circle time or book reading), small group activities where teachers organized children into

smaller groups, and individual activities where teachers organized children to be working individually. Another activity setting was free play, whereby children selected how and with whom they wanted to spend their time. The final activity setting included a combination of routines and transitions (e.g., cleaning up, waiting in line) and meals (e.g., eating snacks).

BCS academic instructional content. Instructional content was coded for a variety of activities (i.e., academics, art, socio-emotional, other content, no content); however, for the purposes of this study the focus was on the provision of academic content (i.e., language, literacy, math, science, and social studies). Similar to activity settings, only one instructional activity could be coded per 30-second interval and, thus, the focal child was classified based on the activity in which he or she spent the majority of the observation interval. Occasions in which the child was exposed to academic content (see above) were composited across children and cycles of observation to form an overall score reflecting the proportion of each form of academic content provided, at the classroom level.

The quality of teacher-child interactions. The CLASS was used to measure teacher-child interactions at the classroom level with 10 dimensions on a seven-point scale (Pianta et al., 2008). Ratings were composited across dimensions and occasions of observation into a three domains of interaction quality, emotional support (α's across three observational occasions = .79-.84), instructional support (α's across three observational occasions = .83-.88), and classroom organization (α's across three observational occasions = .76-.86). During each classroom visit, observers conducted four cycles of observations (each cycle includes 15 minutes to observe, 10 minutes to score). Similar to the BCS, all data collectors attended a two-day training session and were certified on the tool in order to conduct observations. Data collector reliability was maintained with refresher training before data collection and regular calibration meetings. Across

raters, the average level of agreement for the double coded live observations ranged from 62-91% across domains.

Teacher report of instructional rigor. In the spring of the preschool year, teachers responded to a survey that included a series of questions on literacy and math instructional content. Items were adapted from the Early Childhood Longitudinal Study – Kindergarten: 2011 Cohort teacher questionnaires following procedures similar to those used by Claessens and colleagues (2014). Items were selected to represent a range of difficulty levels and content areas and were edited for clarity and to increase alignment to state standards and learning trajectories. The survey included 29 literacy (α = .83) and 26 math (α =.74) items. For each item, teachers indicated whether the content was taught as part of general classroom instruction. To assist in scoring, literacy and math content experts were asked to identify whether each item was most appropriate for preschool, kindergarten, first, or second grade. These responses were then mapped to the state standards local to the school district and consulted again with the experts to resolve any discrepancies. Items were assigned points according to these ratings (preschool items were worth 1 point, kindergarten items were worth 2 points). For first-grade items (3 points) and second-grade items (4 points), teachers received points if they endorsed the item; if they did not endorse those items, responses were treated as missing (i.e., teachers were not penalized in scoring for not endorsing these more difficult content areas). Instructional rigor was the code derived from the sum of these item score, with higher scores reflecting a classroom in which more rigorous content is taught, according to the teacher.

Teacher education and experience. At the start of the school year, preschool teachers were asked to report the highest level of education they had completed (0 = *did not complete high school* to 7 = *doctoral degree*). For interpretability, these reports were converted to a quasi-

continuous measure of years of schooling, with an observed range of 12 to 18 years of education. As part of these surveys, teachers also listed their total years of teaching experience.

Analysis Plan

All focal research objectives were addressed in Stata. Specifically, a series of regression models were estimated to examine the associations between teachers' emotional exhaustion and their classroom practices. To address missing data (mean = 4%, range = 0%–10%), full information maximum likelihood estimation (FIML) was implemented. FIML utilizes all available data points from each individual in estimating model parameters, and is appropriate when data is missing at random.

With the above framework in mind, analyses proceeded in two steps. The first model examined the main links between emotional exhaustion and the nine study outcomes of interest (i.e., dosage and rigor of instructional content, use of different activity settings, and quality of their interactions). Then, to determine whether teachers' education and experience moderated these aforementioned associations, interaction terms were added between teachers' emotional exhaustion and their education and years of experience. If there was evidence for moderation, the guidelines of Aiken and colleagues (1991) were followed to facilitate interpretation. Specifically, the predicted outcome scores for different combinations of the predictor and moderators of interest were calculated using standard deviation cut points.

To reduce the possibility of spurious associations, all models included a series of covariates (in addition to the teacher education and experience moderators noted above) that were based on teacher reports in the fall, namely: teacher race; whether teachers' degree was in early childhood education; proportion of children in the classroom who were boys; proportion of children with limited English skills; proportion of children who were Caucasian; proportion of

children with special needs; mean income to needs ratio of the classroom; classroom age diversity; class size; and classroom type. The above covariates were included because they have been found to contribute to teachers' emotional exhaustion and/or teachers' classroom practices (e.g., Authors, 2005, 2018c; Jeon et al., 2018). In addition, given (a) that teachers were observed up to three times and (b) the different windows of teacher surveys in the fall (November-January) and spring (March-May), all models adjusted for the number of teacher observations completed and the time between surveys, which was approximately 102 days (*SD* = 12.26).

Results

Although not a focal study objective, the descriptive patterns of emotional exhaustion are presented first. As can be seen in Table 1, preschool teachers reported an average level of emotional exhaustion of 2.97 (*SD* = 1.27), which means that they experienced emotional exhaustion roughly once a month. But as can be seen by the standard deviation of preschool teachers' responses, there was considerably heterogeneity and approximately 20-25% of teachers reported experiencing emotional exhaustion several times a month.

The Links between Emotional Exhaustion and Teachers' Classroom Practices

Having established the descriptive patterns of emotional exhaustion, the associations between preschool teachers' emotional exhaustion and their classroom practices were next examined. Results from these analyses revealed that preschool teachers' reports of emotional exhaustion was *not* associated with the rigor nor dosage of their academic instruction (see Table 3; average absolute effect size of .06). Likewise, emotional exhaustion was *not* associated with the relative proportions of various activity settings preschool teachers used to deliver instruction (average absolute effect size of .07). However, preschool teachers who reported greater emotional exhaustion demonstrated lower observed quality emotional support, instructional

support, and classroom organization than less emotionally exhausted preschool teachers, with an effect size difference of approximately .21-.26.

Variability in the Links between Emotional Exhaustion and Teachers' Classroom Practices

The next set of analyses considered whether preschool teachers with different educational experiences and qualifications responded differently to emotional exhaustion. In analyses of teacher education as the moderator, five of the eight interactions were statistically significant (see Table 3). In these analyses, teacher education did *not* mitigate the negative links between higher emotional exhaustion and the quality of teacher-child interactions reported above; instead, a one standard deviation increase in teacher education was linked with higher quality interactions among less emotionally exhausted preschool teachers (one standard deviation below the mean; with an effect size difference of approximately .45), but not among those who were more emotionally exhausted (one standard deviation above the mean; with an effect size difference of approximately .05). Moreover, even though emotional exhaustion was *not* associated with the way in which preschool teachers structured their classroom environments overall, there was evidence of moderation. Probing this interaction revealed that more educated preschool teachers who experienced greater levels of emotional exhaustion were less likely to implement child-selected activities in the classroom and more likely to provide teacher-directed instruction. In contrast, less educated and more emotionally exhausted preschool teachers relied more on child-selected instruction.

Finally, when examining preschool teachers' experience as the moderator, only one significant interaction emerged. Probing this interaction revealed that the rigor of math instruction did not vary as a function of emotional exhaustion for less experienced preschool teachers. However, more experienced preschool teachers who were more emotionally exhausted

were found to teach less rigorous math content as compared with more experienced preschool teachers who were not emotionally exhausted.

Discussion

The increasing attention in the early childhood field toward teachers' emotional exhaustion and well-being is grounded both in research and in reports of teachers' workplace experiences (Buettner et al., 2016; Sandilos et al., 2018; Split et al., 2011). Even with the recognition of the importance of teachers' well-being, much of the focus in research and in policy initiatives has been on the antecedents of emotional exhaustion and the pressures of increased job demands (Aloe et al., 2013; Dicke et al., 2014; Jeon et al., 2018) or on the links between teachers' emotional exhaustion and well-being and children's school success (Arens & Moirn, 2016; Pakarinen et al., 2010; Zinsser et al., 2013). To date, less attention has been paid to the potential ramifications of emotional exhaustion for different aspects of teachers' classroom practices, which is an important gap in knowledge because such an endeavor has the potential to provide insight into the consequences for children in classrooms with emotionally exhausted teachers. The present study addressed this gap by examining how preschool teachers' emotional exhaustion might be linked to three components of their classroom practices, namely: The dosage and rigor of instruction, teachers' instructional grouping practices, and the quality of teacher-child interactions. As part of this effort, the present study also considered whether preschool teachers' education and experience moderated the influence of their emotional exhaustion. Considering the pattern of results, three key themes emerge.

To begin, the average preschool teacher in this sample reported feeling emotionally exhausted roughly once a month, with considerable variability in teachers' responses. For example, approximately a third of teachers reported feeling emotionally exhausted only a few

times per year, whereas 20-25% of teachers reported feeling emotionally exhausted a few times per month. Such results confirm that feelings of emotional exhaustion are prevalent within the early childhood workforce and the general consensus that being a teacher is a demanding and sometimes even exhausting job (see also: de Heus & Diekstra, 1999).

Beyond the descriptive patterns of preschool teachers' experiences of emotional exhaustion, findings also revealed that more emotionally exhausted preschool teachers demonstrated lower quality interactions with children in their classrooms. Specifically, preschool teachers who were more emotionally exhausted exhibited lower quality instructional support, emotional support, and classroom organization than preschool teachers who reported less emotional exhaustion. In contrast, however, there were no associations between preschool teachers' emotional exhaustion and their instructional grouping practices nor the dosage and rigor of their math and literacy instruction (but see the below discussion of moderation). That is, more emotionally exhausted and less emotionally exhausted preschool teachers taught similar material and structured their classrooms in a similar fashion, but exhaustion was reflected in the quality of their interpersonal interactions with children.

Collectively, these findings resonate with extant literature that suggests that teachers' emotional exhaustion has ramifications for their long-term well-being and commitment to their profession (Buettner et al., 2016; Jennings, 2015) by revealing that there are also consequences for certain aspects of their day-to-day classroom practices. The above is of importance because of teachers' central role as an educational and developmental resource in classrooms, and the extent to which they engage in sensitive and responsive behavior, stimulate children's cognitive and language development, and organize the classroom as an active and intentional context for learning has consequences for children's early academic and socio-emotional development

(Broekhuizen et al., 2016; Carr et al., 2019; Keys et al., 2013). Accordingly, experiences of emotional exhaustion appear to be critical for these classroom-based resources.

Moreover, there were significant interactions between preschool teachers' emotional exhaustion and their years of education (but not consistently with years of teaching experience),. Preschool teachers' emotional exhaustion was inversely associated with the quality of their interactions, but these associations were *larger* for *more* educated teachers. Put another way, the influence of emotional exhaustion was *not* buffered by preschool teachers' qualifications, but rather, more emotionally exhausted teachers were less likely to provide higher quality care even if they were more highly educated (see also: Buettner et al., 2016; Forry et al., 2013; Susman-Stillman et al., 2013; Whitaker et al., 2015). Indeed, more educated preschool teachers (one standard deviation above the mean) with lower levels of emotionally exhaustion demonstrated higher quality interactions than less educated preschool teachers (the mean) who were also not emotionally exhausted, with an effect size difference of approximately .45. In contrast, more educated preschool teachers (one standard deviation below the mean) who were emotionally exhausted did *not* demonstrate higher quality interactions than less educated preschool teachers (the mean) who were also emotionally exhausted, with an effect size difference of roughly .05. These findings may indicate that one reason why prior studies may have failed to consistently detect links between teachers' education and the quality of their interactions (e.g., Author, 2005; Early et al., 2007; Lin & Magnuson, 2018) is because they did not consider the role of teachers' emotional exhaustion. Thus, future studies examining teachers' education or experience and classroom practice should include assessments of exhaustion or stress; otherwise, they may underestimate the relations between teachers' qualifications and their classroom practices.

Finally, results from moderation analyses also revealed that more and less educated preschool teachers structured their classrooms differently in the face of emotional exhaustion. Emotionally exhausted preschool teachers with more education were observed to use more teacher-directed instruction whereas those who were less educated relied more on free play. One possibility that warrants attention in the future is that under conditions of emotional exhaustion, teachers have fewer emotional and psychological resources to rely on and, consequently, they may revert to a more simplified or constrained form of practice that may reflect their training. With that said, it is important to note that there is *not* a clear consensus as to whether teacher-directed instruction is better than free play in the early childhood years (e.g., Camilli et al., 2010; Milesi & Gamoran, 2006; Fuligni et al., 2012) and, thus, these findings are presented agnostically to highlight differences in instructional formats.

Despite these contributions to the literature, the results of the present investigation have a number of limitations that require attention. First, although models controlled for a number of teacher and classroom factors, the results of the present study are not based on a randomized control trial and, therefore, the findings reported herein should be interpreted with caution because findings may be biased by omitted variables that correlate with both the predictor and outcomes under study. Second, similar to other studies that have attempted to provide a snapshot of preschool teachers' practices (e.g., Early et al., 2010), classroom observations occurred for only part of the school day. This limitation is somewhat mitigated because classroom instruction generally occurs in the first half of the school day and the majority of study classrooms were observed at three different time points across the year. Nevertheless, future studies should consider full-day observations across several time points as a means of providing a more complete understanding of the classroom environment.

It is also important to acknowledge that the results reported as part of this study are exploratory and may not be generalizable beyond the preschool teachers and classrooms from the participating county and, consequently, future research should attempt to replicate these findings with different samples and methods to ensure external validity. And considering that the present study had a sample of 117 preschool teachers, the study analyses were adequately powered to detect effect sizes of roughly .25 (given the number of predictors/covariates in our model), which is on par with what is considered to be a meaningful effect size in the larger education literature, but also means that this study was underpowered to detect smaller associations. Finally, even though preschool teachers' emotional exhaustion was assessed with a tool that has been frequently implemented in the extant literature, the MBI has its limitations and the present study was further limited by the fact that emotional exhaustion was only assessed in the fall. This is of note because teachers' stress levels are likely to be higher later in the year. Accordingly, future studies should consider the ways in which teacher stress unfolds over the course of the school year and the extent to which teachers' cumulative stress levels link to their classroom practices.

With these limitations and future directions in mind, the results of the present study suggest that preschool teachers overall demonstrate moderate levels of emotional exhaustion but the considerable variation in individuals' experience has consequences for their behavior in classrooms. Even though there were no differences in terms of the content and structure of teachers' classroom practices, more emotionally exhausted preschool teachers did demonstrate lower quality interactions with children in their classrooms than those who were less emotionally exhausted. These associations were even true for more educated preschool teachers. Given the high levels of work-related stress documented among early childhood educators (de Heus & Diekstra, 1999), closer attention should be paid to their emotional exhaustion and well-being.

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Table 1.
Descriptive statistics for the study sample.

Variables	*Mean* (*SD*) or Proportion	*Range*
Focal predictors and outcomes of interest		
Emotional exhaustion	2.97 (1.27)	1.00-6.33
Quality of teacher-child interactions		
Instructional support	2.38 (0.49)	1.38-3.76
Emotional support	5.35 (0.61)	3.23-6.38
Classroom organization	5.43 (0.55)	3.88-6.46
Activity settings		
Teacher-directed instruction	0.38 (0.14)	0.05-0.79
Free play	0.30 (0.13)	0.00-0.64
Routines/meals	0.32 (0.13)	0.05-0.72
Dosage and rigor of instruction		
Time spent in academics	0.35 (0.12)	0.14-0.71
Math instruction level	1.65 (0.29)	0.83-2.13
Literacy instruction level	1.53 (0.39)	0.38-2.30
Moderators and covariates		
Teacher characteristics		
Teacher Caucasian	.58	0.00-1.00
Teacher years of education	16.86 (1.60)	12.00-18.00
Teacher has a degree in early childhood education	.39	0.00-1.00
Teacher years of experience	15.68 (9.73)	0.00-42.00
Classroom characteristics		
Proportion of children who are boys	.51	0.24-0.77
Proportion of children with limited English skills	.56	0.00-1.00
Proportion of children who are Caucasian	.36	0.10-1.00
Proportion of children with special needs	.08	0.00-0.41
Classroom income to needs ratio	0.88 (0.29)	0.30-2.53
Classroom age diversity	.36 (.16)	0.00-0.66
Class size	16.86 (1.85)	9.00-23.00
Classroom type		

Head Start	.23	0.00-1.00
Private center	.15	0.00-1.00
Public school	.62	0.00-1.00

Note. Proportions may not sum to 1.00 due to rounding. $n = 117$.

Table 2.
Correlation matrix of the focal predictor and outcomes of interest.

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Emotional exhaustion	1.00								
2. Instructional support	-0.20	1.00							
3. Emotional support	-0.14	0.65	1.00						
4. Classroom organization	-0.16	0.71	0.70	1.00					
5. Teacher-directed instruction	0.05	0.12	-0.07	-0.00	1.00				
6. Free play	-0.12	-0.05	0.11	0.05	-0.52	1.00			
7. Routines/meals	0.07	-0.08	-0.03	-0.05	-0.51	-0.47	1.00		
8. Time spent in academics	0.01	0.03	-0.16	0.06	0.28	0.17	-0.47	1.00	
9. Math instruction level	-0.03	0.23	0.28	0.26	-0.07	-0.05	0.12	-0.05	1.00
10. Literacy instruction level	0.00	0.18	0.18	0.15	0.11	-0.22	0.11	-0.07	0.62

Table 3.
Associations between emotional exhaustion and preschool teachers' classroom practices

	Emotional exhaustion		Emotional exhaustion X teacher education		Emotional exhaustion X teacher experience	
Outcomes	*b*	*SE*	*b*	*SE*	*b*	*SE*
Quality of teacher-child interactions						
Instructional support	-0.26 **	0.10	-0.20 *	0.10	-0.09	0.09
Emotional support	-0.21 *	0.10	-0.29 **	0.10	-0.02	0.10
Classroom organization	-0.24 *	0.10	-0.21 *	0.10	0.06	0.09
Activity settings						
Teacher-directed instruction	0.10	0.10	0.26 *	0.10	-0.08	0.09
Free play	-0.09	0.10	-0.31 **	0.09	0.01	0.09
Routines/meals	-0.02	0.10	0.05	0.10	0.07	0.09
Dosage and rigor of instruction						
Time spent in academics	-0.02	0.10	0.02	0.10	0.11	0.10
Math instruction level	-0.12	0.10	-0.06	0.10	-0.20 *	0.09
Literacy instruction level	-0.05	0.10	0.08	0.11	-0.11	0.10

Note. All continuous variables have been standardized to have a mean of zero and standard deviation of one, and thus, coefficients can be interpreted as effect sizes. $n = 117$.
*$p < .05$; **$p < .01$; ***$p < .001$.