

# Supporting the Psychological Well-Being of the Early Care and Education Workforce: Findings from the National Survey of Early Care and Education



# Supporting the Psychological Well-Being of the Early Care and Education Workforce: Findings from the National Survey of Early Care and Education

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<sup>1</sup> Dr. Shuey's views are her own and do not necessarily reflect those of the Organisation or of its Member countries.

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## Overview

### Introduction

While many efforts to improve the quality of early care and education (ECE) have focused on increasing teachers' and caregivers' competencies and knowledge specific to the teaching of young children, a small body of research suggests that an ECE workforce that is mentally healthy can provide the best-quality care for children.

### Research Questions

1. How psychologically distressed is the ECE workforce?
2. What *formal* and *informal* workforce supports are associated with less distress in the ECE workforce?

### Purpose

Quality improvement efforts for ECE often focus on increasing teachers' and caregivers' competencies and knowledge specific to the **teaching** of young children. Now, a growing body of research suggests that supporting caregivers' **psychological well-being** may also be a worthy goal. This report addresses an important next step in this work: understanding the linkages between various workforce supports and teachers' psychological well-being.

The findings from this report can be used to guide practices and policies in ECE programs to support teachers' psychological well-being. This report will also be helpful for researchers because it describes future studies that could be undertaken to answer remaining questions about the psychological well-being of the ECE workforce.

## Key Findings and Highlights

- Fewer than one in ten center-based ECE teachers have moderate psychological distress, and less than one percent experience serious distress.
  - ECE teachers were less likely than the general population of adult females to experience serious psychological distress.
- Teachers had less psychological distress when they experienced **teamwork, respect, and stability at work**.
  - Other workforce supports were hypothesized to be important for ECE teachers' well-being, but were not significantly associated with teachers' distress. These included (a) group size/ratio, (b) availability of coaching/mentoring, (c) financial support for professional development, (d) substantive supervision, and (e) support for the teacher in dealing with difficult children and parents.
  - Teachers with lower household incomes reported greater psychological distress.

## Methods

This report used data from the National Survey of Early Care and Education (NSECE), a nationally representative survey of the ECE workforce collected in 2012. Teachers responded to six items assessing symptoms of nonspecific psychological distress—for example, how often they feel like “everything is an effort.” This six-item measure was developed to assess population-level mental health in the U.S. National Health Interview Survey. Workforce supports were measured at the same time as teachers' psychological well-being.

After accounting for teachers' background characteristics, we examined whether **formal** workforce supports (e.g., coaching/mentoring) and **informal** workforce supports (e.g., feeling respected at work) were associated with ECE teachers' psychological distress.

## Recommendations

While our findings are not causal, they suggest that ECE programs with a supportive and rewarding workplace climate may be beneficial for ECE teachers' psychological health. Programs and research should further explore aspects of workplace climate, including teamwork and respect, as well as a broader range of possible supports and practices to strengthen social connections and esteem among employees. Finally, programs and future research should explore a range of practices or conditions that may alleviate financial or material stressors for teachers, given our finding that teachers with higher household incomes had lower levels of psychological distress.

Researchers can further illuminate this topic in the following ways:

- Continue to explore whether, and under what circumstances, psychological distress in the ECE workforce may negatively impact children's well-being.
- Capitalize on longitudinal study designs to understand how various workforce supports, teachers' psychological distress, and employment status (e.g., exiting the workforce) are related over time.
- Identify predictors of psychological distress among home-based ECE teachers and caregivers.

- Collect more detailed information about specific workforce supports, such as whether a coaching program included mental health consultation.
- Further explore the association between ECE teachers' household income and their psychological distress, seeking to understand how income may contribute to teachers' psychological distress, such as through individual wages, financial security, material hardship, or perceived inequality.

## Glossary

ECE: Early Care and Education

NSECE: National Survey of Early Care and Education

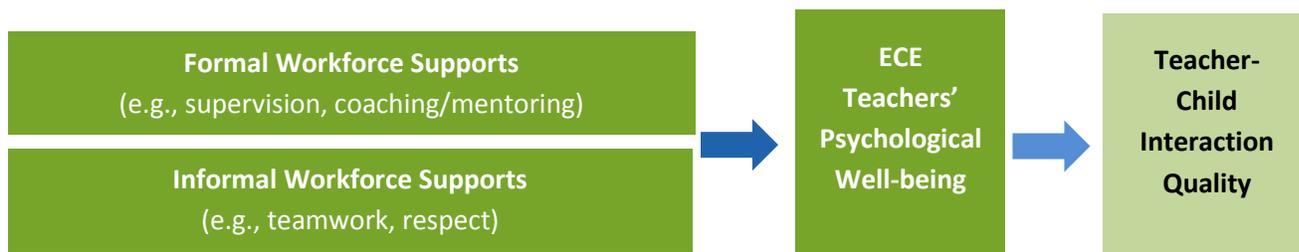
## Executive Summary

In 2012, about one-quarter of American children under age five attended center-based early care and education (ECE) at least five hours per week (NSECE Project Team, 2016). The one million teachers and caregivers working with these children can support children’s social and emotional development and early academic skills through their daily interactions (Hamre, Hatfield, Pianta, & Jamil, 2014).

Caring for children is an important task, but can be challenging and exhausting. Research suggests that an ECE workforce that is mentally healthy can provide the best-quality care for children and reduce the likelihood of problem behavior in the classroom (Hamre & Pianta, 2004; Jeon, Buettner, & Snyder, 2014). While many efforts to improve the quality of ECE have focused on increasing teachers’ and caregivers’ competencies and knowledge specific to the teaching of young children, a small body of research suggests that supporting caregivers’ psychological well-being may also be a worthy goal (Hamre & Pianta, 2004; Jeon, Buettner, & Snyder, 2014).

This report addresses an important next step in this work: understanding the linkages between various workforce supports and teachers’ psychological well-being. For example, do formal supports such as coaching and low child-teacher ratios support psychological well-being in the ECE workforce? Are informal supports, such as the social climate of the child care center, also important for psychological well-being? Figure 1 shows the hypothesized relationships between workforce supports, psychological well-being, and the quality of care.

**Figure 1.** Hypothesized Relationships among Workforce Supports, ECE Teachers’ Psychological Well-being, and the Quality of Teacher-Child Interactions



This report uses a recent nationally representative survey of the ECE workforce to identify supports to psychological well-being among teachers in center-based ECE programs (NSECE Project Team, 2016). Teachers responded to six items assessing symptoms of nonspecific psychological distress—for example, how often they feel like “everything is an effort.” After accounting for teachers’ background characteristics, we examined whether formal workforce supports (e.g., coaching/mentoring) and informal workforce supports (e.g., feeling respected at work) were associated with ECE teachers’ psychological distress. Our analyses are restricted to teachers and lead teachers in the center-based workforce, so we use the term “teachers” when discussing findings.

Due to data limitations, we focus on the first path of Figure 1—between workforce supports and ECE teachers’ psychological well-being. Workforce supports were measured at the same time as teachers’

psychological well-being. Because teachers were not randomized to receive different workforce supports, we cannot conclude that certain supports *caused* less distress, but we can conclude that certain associations between workforce supports and psychological well-being exist for the center-based ECE workforce.

## Key Findings

Fewer than one in ten center-based ECE teachers have moderate psychological distress, and less than one percent have serious distress.

- On a scale from 0–24, the *average* distress score of teachers in our sample was 2.6.
- ECE teachers were less likely than the general population of adult females to experience serious psychological distress.

Teachers had less psychological distress when they experienced teamwork, respect, and stability at work.

- When we examined several predictors of ECE teachers' psychological distress simultaneously, teachers with certain **demographic characteristics** had significantly more distress:
  - Teachers with a *high school education or less*<sup>2</sup>
  - Asian teachers<sup>3</sup>
  - Teachers with lower household incomes<sup>4</sup>
- Of the **formal workforce supports** considered (group size/ratio, availability of coaching/mentoring, financial support for professional development, substantive supervision, stable classroom assignments), only stable classroom assignments were significantly associated with lower levels of psychological distress:
  - Teachers who had been moved to another classroom or assigned to a different group of children at least once in the past week had significantly more psychological distress than teachers with more stable work assignments.
- Several **informal workforce supports** significantly predicted teachers' psychological distress, even when accounting for teachers' background characteristics, the program's funding source, and classroom age group:
  - Teachers who perceived that teamwork was encouraged in their program had significantly less psychological distress than teachers who perceived less encouragement of teamwork.
  - Teachers who felt respected in the child care center had significantly less psychological distress than those who felt less respect.

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<sup>2</sup> Teachers with a *high school education or less* had the highest average levels of psychological distress, but their distress levels were only significantly higher than those of teachers with *some college* and teachers with an *associate degree in a field related to early childhood development*.

<sup>3</sup> *Asian* teachers had the most psychological distress. Teachers who identified as Hispanic, non-Hispanic Black, White, or Other races had similar levels of psychological distress.

<sup>4</sup> Teachers with annual household incomes in the lowest income category (\$0–\$22,500 per year) had significantly more psychological distress than those with incomes over \$45,000.

## Background: Psychological Distress in the ECE Workforce

### Psychological distress in the ECE workforce

Psychological distress is conceptualized in various ways, from diagnosis of a specific psychiatric disorder (e.g., depression, anxiety) to nonspecific symptoms caused by any number of mental illnesses. The present study takes the latter approach, using the Kessler-6 Psychological Distress Scale, or K6, to measure nonspecific psychological distress (Kessler, et al., 2003). The K6 scale has a cut-off to identify adults with serious mental impairment, defined as anxiety or mood disorders<sup>5</sup> coupled with impaired daily functioning (Kessler, et al., 2002).<sup>6</sup> Moreover, higher average K6 scores are associated with more mood and anxiety disorders (Kessler, et al., 2003). To provide context for our analysis, we focus whenever possible on other research that used the K6. We also focus on research with female-specific findings, as the ECE workforce is dominated by females.

**How distressed is the workforce?** A small body of research suggests that many ECE teachers and caregivers experience distress, but comparisons between the ECE workforce and the general population yield mixed findings. In one study of 90 Head Start teachers, no teachers had serious psychological distress as measured by the K6 (Li-Grining, et al., 2010). In contrast, a national survey found that 3.9 percent of females ages 18–44 in the general population had serious psychological distress on the K6 (Clarke, Norris, & Schiller, 2017). Although these findings suggest that ECE teachers are less distressed than the general population, adults in the workforce typically have lower levels of psychological distress than adults who are out of the workforce (Bratter & Eschbach, 2005).

Given the limited body of research using the K6 to study the ECE workforce, we turn to studies that examined depression in the ECE workforce using the self-reported CES-D measure of depression.<sup>7</sup> Although the K6 does not exclusively measure depression, individuals with major depression are likely to be identified by the K6.

Estimated prevalence rates of depression among ECE caregivers range from 9 percent (among home- and center-based ECE caregivers across the country) to 24 percent (among a sample of Head Start staff in Pennsylvania) (Hamre & Pianta, 2004; Whitaker, Becker, Herman, & Gooze, 2013). There are two important differences between these studies that may explain, at least in part, the wide range of prevalence rates. First, teachers in the Pennsylvania Head Start sample completed their surveys through a one-time, anonymous, web-based survey, which may have led to more honest responses than the ECE caregivers in the national sample, who were part of an ongoing study that linked caregivers to the

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<sup>5</sup> Mood and anxiety disorders considered in the study included generalized anxiety disorder, obsessive-compulsive disorder, panic disorder, phobias, posttraumatic stress disorder, dysthymia, major depression, and mania. The K6 is not designed to identify individuals with substance abuse disorders.

<sup>6</sup> The standard K6 assesses participants' symptoms *in the past 30 days*. In Kessler et al. (2002), however, participants were instructed to think about the one month *during the past year* when they had the most severe and persistent emotional distress. This modification was necessary to line up with the timeframe used to assess anxiety and mood disorders, as well as daily functioning. Impaired daily functioning was defined as a Global Assessment of Functioning score between 0 and 70 (0 = severely impaired; 100 = extremely high functioning) (Kessler, et al., 2002).

<sup>7</sup> CES-D is short for the Center for Epidemiological Studies-Depression Scale.

families and children they served. Second, the national sample included caregivers in different settings. Indeed, the average depression score for caregivers in family child care homes was lower than the average for center-based ECE teachers and for in-home caregivers. For comparison, the CES-D depression rate is 17–24 percent among mothers of toddlers (McLennan, Kotelchuck, & Cho, 2001). Moreover, nearly 20 percent of the sample of Pennsylvania Head Start staff had at least 14 mentally unhealthy days per month, compared to just 10 percent of adults in the nation (Whitaker, Becker, Herman, & Gooze, 2013).

Cortisol is a stress hormone that should peak in the morning and decrease over the day. In a sample of 101 ECE teachers and caregivers (both home- and center-based), cortisol tended to remain high from morning to afternoon when caregivers were working. On nonwork days, however, cortisol decreased as expected (Groeneveld, Vermeer, van IJzendoorn, & Linting, 2012), suggesting that workdays are especially stressful for ECE teachers and caregivers.

**What are the implications of psychological distress for ECE teachers and employers?** In addition to the obvious strains of experiencing psychological distress for the teacher herself, a mentally unhealthy workforce poses challenges for employers. In the Pennsylvania Head Start sample described above, depressed staff members had an average of 12.8 days of absence per year due to illness, compared to 7.3 days per year for staff who were not depressed. Centers must find substitutes when a teacher is absent.

Studies from other occupations identify additional consequences of psychological distress. Among employees who reported having physical health conditions such as migraines, those who *also* had serious psychological distress on the K6 had more absences and were less productive at work (Holden, et al., 2011). Individuals with serious psychological distress on the K6 also tend to have higher health care costs (Dismuke & Egede, 2011).

**What are the implications of psychological distress for ECE quality and child development?** A major concern is that distressed teachers' interactions with young children will not be the rich, sensitive interactions that benefit children. This concern is based on evidence that mothers with depression—one of the mood and anxiety disorders detected by the K6—are less sensitive when interacting with their children, compared to mothers who are not depressed (NICHD Early Child Care Research Network, 1999). Furthermore, the infants and toddlers of mothers who are depressed tend to have more behavior problems and poorer cognitive and linguistic development (NICHD Early Child Care Research Network, 1999).

Indeed, studies have found that depressed ECE teachers and caregivers score lower on global ratings of child care quality and are more withdrawn when interacting with children, compared to their peers who are not depressed (Hamre & Pianta, 2004; Jeon, Buettner, & Snyder, 2014). Among three-year-old children, parent-rated internalizing behavior problems such as sadness and anxiety are higher in classrooms where the teacher is depressed (Jeon, Buettner, & Snyder, 2014). In addition, center-based ECE caregivers with higher cortisol levels—indicative of higher stress—scored lower on a composite measure of caregiver behavior quality that assessed teachers' impatience and irritation (both reverse-

coded), and their sensitivity in interactions with children (de Schipper, Riksen-Walraven, Geurts, & de Weerth, 2009).

Finally, Mensah and Kiernan (2010) asked whether parents' psychological distress, measured with the K6, was associated with their five-year-olds' developmental achievement. The researchers used a more liberal cut-off on the K6—a score of seven or higher—to include parents who had moderate to serious psychological distress. Even after accounting for a host of background characteristics, children whose mothers had K6 scores of seven or higher were less advanced than children of mothers with lower K6 scores on teacher-rated communication/language/literacy, math, and personal/social/emotional development. Fathers' psychological distress was included alongside mothers' psychological distress, but was not associated with children's outcomes (Mensah & Kiernan, 2010). These findings suggest that even moderate levels of psychological distress on the K6 could have implications for children.

### What factors are associated with psychological distress in the ECE workforce?

Despite emerging evidence that a psychologically healthy ECE workforce is important for children, few studies have examined how ECE programs support—or hinder—psychological wellness among the workforce. Studies of the ECE workforce, other professions, and the general population help us understand, first, how certain demographic characteristics might put some ECE teachers at risk for serious psychological distress. We then review studies to identify possible supports for psychological well-being in the ECE workforce.

**Demographics and distress.** The K6 is assessed in the U.S. adult population annually via the National Health Interview Survey, providing an important comparison source for the current study. National estimates reveal that serious psychological distress is **more common** among some groups within the U.S. population:

- Women, compared to men<sup>8</sup> (Clarke, Norris, & Schiller, 2017)
- Middle-aged women (ages 45–64), compared to both younger and older women<sup>9</sup> (Clarke, Norris, & Schiller, 2017)
- Unmarried adults, compared to their married counterparts<sup>10</sup> (Pratt, Dey, & Cohen, 2007)
- Individuals with less education<sup>11</sup> (Pratt, Dey, & Cohen, 2007)

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<sup>8</sup> 3.9 percent of females ages 18–44 had serious psychological distress, compared to 2.8 percent of men in the same age group.

<sup>9</sup> 3.9 percent of females ages 18–44 had serious psychological distress. By contrast, 5.7 percent of females ages 45–64 had serious psychological distress, and just 2.5 percent of females ages 65 and older had serious psychological distress.

<sup>10</sup> Compared to adults without serious psychological distress, adults with serious psychological distress are twice as likely to be divorced. The following are prevalence rates of serious psychological distress by marital status: (a) married, 2.3 percent; (b) never married, 3.3 percent; (c) divorced, 6.2 percent; and (d) widowed, 4.1 percent.

<sup>11</sup> Over 6 percent of adults without a high school diploma had serious psychological distress, compared to 3.3 percent of adults with a high school diploma or GED, 2.8 percent of adults with some college but no bachelor's degree, and just 1.2 percent of adults with a bachelor's degree.

- Individuals with lower incomes<sup>12</sup> (Pratt, Dey, & Cohen, 2007)
- Individuals without insurance<sup>13</sup> (Pratt, Dey, & Cohen, 2007)

The role of race and ethnicity in psychological distress is complicated, with few differences in psychological distress when accounting for background characteristics such as socioeconomic status (Bratter & Eschbach, 2005). Importantly, the K6 is a valid measure of psychological distress across ethnicities (Kessler, et al., 2002).

**Child care center characteristics and teachers’ distress.** Working with infants and toddlers may be especially challenging, as such young children require lots of physical care and cannot communicate as well as preschoolers (de Schipper, Riksen-Walraven, Geurts, & de Weerth, 2009). To date, though, studies have not found an association between children’s age and either depression or cortisol levels among ECE teachers and caregivers (Hamre & Pianta, 2004; de Schipper, Riksen-Walraven, Geurts, & de Weerth, 2009).

**Formal workforce supports and teachers’ distress.** To address the challenges of an ECE job in an intentional and structured format, many ECE programs offer regular supervision, support for professional development (PD: e.g., paid time off; funding for workshops), and coaching/mentoring. For example, mental health consultation for Head Start teachers improved teachers’ perceived job control and perceptions of work-related resources, although it had no effect on teachers’ perceived job demands (Zhai, Cybele Raver, & Li-Grining, 2011). Keeping class sizes small and providing low child-adult ratios could also make the ECE job less stressful, although ECE teachers’ depression was unrelated to the child-adult ratio in one study (Hamre & Pianta, 2004).

Another formal support in some ECE programs is an organizational design that ensures stable classroom assignments for teachers. Frequent movement of teachers between classrooms or groups of children may meet the program’s needs on a given day (e.g., regulatory requirements for child-adult ratios), but can make it difficult for a teacher to learn about and accommodate children’s individual needs, which can make the teacher’s job more stressful. Furthermore, being told by a center director that they must move classrooms takes away teachers’ sense of control at their job. Indeed, other studies show that employees who feel as though they have no control over their work environment experience more depression and anxiety (American Psychological Association, 2003). Laboratory studies consistently find that when individuals are faced with an uncontrollable task, their cortisol levels increase (Dickerson & Kemeny, 2004).

**Informal workforce supports and teachers’ distress.** The social climate of an ECE center includes characteristics based on whether teamwork is encouraged, whether teachers feel respected at work, and whether they feel as though they are supported in dealing with difficulties at work (NSECE Project Team, 2016). In other occupations, employees who perceive more social support at work are less likely

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<sup>12</sup> Eight percent of adults living below the federal poverty line had serious psychological distress, compared to just 2 percent of adults living at 200 percent of the poverty line or higher.

<sup>13</sup> Just 19 percent of adults without serious psychological are uninsured, compared to 29 percent of adults with serious psychological distress.

to develop serious psychological distress over time, compared to employees who perceive less workplace social support (Marchand & Blanc, 2010).



## Data Source: The National Survey of Early Care and Education

The 2012 National Survey of Early Care and Education (NSECE) is a set of four integrated, nationally representative surveys that describe the early care and education (ECE) landscape in the United States (NSECE Project Team, 2016). The data presented in this report are drawn from two surveys of the NSECE. The **center-based provider survey** is a nationally representative sample of center-based ECE programs serving children not yet in kindergarten. The respondent was typically the center director. The **center-based workforce survey** is a nationally representative sample of ECE teachers and caregivers, with one randomly selected teacher or caregiver (typically a lead teacher, teacher, assistant teacher, or aide) from a randomly selected classroom in the center.

The estimates presented here were calculated using merged data from the public-use versions of these two surveys, with supplementation from the quick-tabs and restricted-use datasets.<sup>14</sup> Our analysis focuses on teachers and lead teachers (not assistants or aides) in classrooms with at least one child under age 5. Our analytic sample is made up of 3,363 teachers.<sup>15</sup> We applied the workforce sampling weight so that our estimates reflect the teachers working with children under age five in center-based ECE programs across the United States. The weighted sample size was 700,436 teachers.

Table 1 presents descriptive information about the ECE teachers in our analyses.

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<sup>14</sup> The workforce quick-tabs dataset was needed to obtain employees' insurance receipt. The workforce Level 1 restricted-use dataset was used to create a marital status variable that differentiated between widowed teachers and teachers who were divorced/separated.

<sup>15</sup> The NSECE collected data from 3,399 teachers/lead teachers in classrooms with children under age five, but 36 teachers were excluded from analyses due to missing data on the measure of psychological distress.

**Table 1.** Center-Based ECE Teachers' Characteristics and Workforce Supports

Categorical Variables	Frequencies		
	Unweighted sample size	Weighted percent of teachers	Standard error of weighted percent
<b>Gender</b> (not included in regression models due to small number of males)			
Male	102	3%	0.53
Female	3,267	97%	0.53
<b>Age</b>			
*18–44	1,982	61%	1.50
45–64	1,211	37%	1.49
65+	116	3%	0.79
<b>Marital status</b>			
*Married or living with partner	1,940	62%	1.49
Never married, not living with partner	900	24%	1.29
Separated/divorced	420	13%	0.94
Widowed	80	2%	0.40
<b>Education level/major</b>			
HS or less	474	17%	1.23
Some college	801	24%	1.46
AA in field unrelated to ECD or education	104	4%	0.55
BA/BS/AB in field unrelated to ECD or education	218	7%	0.89
AA in ECD, education, or related field	523	14%	1.10
BA/BS/AB in ECD, education, or related field	818	23%	1.38
*Advanced degree in any field	439	11%	1.12
<b>Race/ethnicity</b>			
*White (Non-Hispanic)	1,808	65%	1.95
Black (Non-Hispanic)	714	18%	1.66
Asian (Non-Hispanic)	125	2%	0.43
Other (Non-Hispanic)	111	2%	0.43
Hispanic/Latino (all races)	590	13%	1.23
<b>Language of survey</b>			
*English	3,261	100%	0.08
Spanish	38	0%	0.08
<b>Program funding source</b>			
School-sponsored centers	195	5%	0.80
Head Start but not public school	524	12%	1.18
Public Pre-K but not public school or Head Start	706	20%	1.39
*Other center	1,974	62%	1.82

**Table 1 (continued).** Center-Based ECE Teachers' Characteristics and Workforce Supports

Categorical Variables	Frequencies		
	Unweighted sample size	Weighted percent of teachers	Standard error of weighted percent
<b>Classroom age group</b>			
Infant/toddler	1,358	44%	1.58
*Preschool	2,041	56%	1.58
<b>Group size/ratios</b>			
Meets neither group size nor ratio standards	319	10%	0.91
Meets either group size or ratio standards	568	17%	1.22
*Met both group size and ratio standards	2,474	73%	1.56
<b>Household income</b>			
*\$0 to 22,500	843	29%	1.52
\$22,501 to 45,000	925	30%	1.47
\$45,001 or more	1,159	41%	1.66
<b>Insurance coverage</b>			
*No coverage of any type	666	24%	1.44
Private health insurance from employer/workplace, other insurance type(s)	1,187	34%	1.69
Private health insurance plan, spouse or partner's employment	648	26%	1.51
Private health insurance plan, purchased directly	121	5%	0.70
Private health insurance plan through a state or local government or community program	79	2%	0.32
Medicaid, Medicare, or military health care	216	6%	0.69
Other insurance or combination of insurance types	121	4%	0.63
<b>Stability: moved classrooms/children in the past week</b>			
Once or more	549	18%	1.21
*Never	2,779	82%	1.21
<b>Program offers coaching, mentoring, or consultation</b>			
No	1,509	48%	1.61
*Yes	1,835	52%	1.61
<b>Teacher receives substantive supervision</b>			
No	390	11%	1.03
*Yes	2,978	89%	1.03
<b>Program offers financial support for professional development</b>			
No	981	26%	1.56
*Yes	2,401	74%	1.56

**Table 1 (continued).** Center-Based ECE Teachers' Characteristics and Workforce Supports

Continuous Variables	Unweighted sample size	Weighted mean of the continuous variable	Standard error of weighted mean
<b>Teamwork is encouraged</b> (1 = strongly disagree; 5 = strongly agree)	3,369	4.37	
<b>Teachers feel respected at work</b> (1 = strongly disagree; 5 = strongly agree)	3,357	4.16	
<b>Teachers have help dealing with difficult children and families</b> (1 = strongly disagree; 5 = strongly agree)	3,355	4.12	

Source: Authors' analysis of the NSECE center-based workforce survey (quick-tabs, public use, and Level 1 restricted-use datasets) and the NSECE center-based provider survey (public-use dataset)

**\*For analytic purposes in the regression models, categories marked with an asterisk are defined as the reference group.**

## Measures

### Outcome of Interest: Psychological Distress

#### Kessler-6 Psychological Distress Scale (K6)

The K6 is a six-item measure of nonspecific psychological distress. The survey asks, “During the past 30 days, how often did you feel (a) nervous? (b) hopeless? (c) restless or fidgety? (d) so depressed that nothing could cheer you up? (e) that everything was an effort? (f) worthless?” Responses are scored on a Likert scale ranging from 0 to 4, where 0 = “none of the time,” 1 = “a little of the time,” 2 = “some of the time,” 3 = “most of the time,” and 4 = “all of the time.”

Responses were summed to generate a total symptom score. The K6 was primarily used as a continuous measure, with a potential range from 0 (no symptoms) to 24 (all symptoms, all of the time). We also assigned teachers to three discrete categories: (1) low psychological distress: K6 scores from 0 to 6; (2) moderate psychological distress: K6 scores from 7 to 12; and (3) serious psychological distress: K6 scores of 13 or higher (**Rosenberg, et al., 2013**).

The K6 was developed to assess population-level mental health in the U.S. National Health Interview Survey. As K6 scores increase, individuals are significantly more likely to have a diagnosed psychiatric disorder (**Kessler, et al., 2003**).

### Background Characteristics and Control Variables

#### Teacher demographics

Teachers reported their year of birth; we subtracted their birth year from 2012 to determine their age. *Age* was then recoded into three categories (18–44, 45–64, and 65+). *Race/ethnicity* was coded as non-Hispanic White, Black, Asian, other race, or Hispanic of any race. *Marital status* encompassed four categories: married or living with partner, never married and not living with partner, separated or divorced, or widowed. *Language of survey* indicated whether the teacher completed the survey in English or Spanish.

Teachers were assigned to categories based on their self-reported *education level and major*: (a) high school or less; (b) some college; (c) associate’s in field unrelated to early childhood development (ECD) or education; (d) BA/BS/AB in field unrelated to EDC or education; (e) associate’s in ECD, education, or related field; (f) BA/BS/AB in ECD, education, or related field; or (g) advanced degree in any field.

Teachers reported their total 2011 *household income* before taxes or deductions. The variable was collapsed into three categories: (a) \$0–\$22,500; (b) \$22,501–\$45,000; and (c) \$45,001 or more. Teachers also reported their source of *health insurance coverage*. Possible responses included (a) no coverage of any type; (b) private plan from employer/workplace (possibly including another insurance type); (c) private plan through spouse or partner’s employment; (d) private plan purchased directly; (e) private plan through a state or local government or community program; (f) Medicaid, Medicare, or military health care; and (g) other insurance or combination of insurance types.

### Program characteristics

The *source of funding* described programs' receipt of funding from three public sources. Center-based programs often receive funding from multiple public sources. To assign programs to a single category, sequential categories were created based on the assumption that school sponsorship is a dominant feature, followed by Head Start funding:

- (a) School-sponsored centers (i.e., a public school district has administrative oversight or reporting requirements, or funds the program; these centers may also receive funds from Head Start and/or Public Pre-k)
- (b) Head Start but not public school (i.e., at least one child was funded by Head Start dollars, but the center-based program was not school-sponsored; center may also receive funds from Public Pre-K)
- (c) Public Pre-K but not public school or Head Start (i.e., at least one child was funded by Public Pre-K dollars, but the center-based program was not school-sponsored and no Head Start funding was reported)
- (d) Other centers (i.e., all remaining programs offering ECE)

A *classroom age group* variable was created based on information from the center director and/or teacher regarding the age of the youngest child in the classroom. Three groups were created: infant/toddler (at least one child younger than 3 years), preschool (at least one child younger than 6 years, but no child younger than 3 years), and school age (only children ages 6 and older). Teachers in school age classrooms were excluded from analyses.

### Formal Workforce Supports

A *coaching/mentoring* variable indicated whether centers provided “mentors, coaching or consultants who visit and work with staff in their classrooms.” A *financial support for professional development (PD)* variable indicated whether centers provided staff with funding or paid time off to participate in a college course or off-site training. A *substantive supervision* variable indicated whether ECE teachers reported that they received formal review/feedback on performance at least once a year. All variables were coded as yes/no.

A *ratio/group size* variable was calculated based on information provided by the individual completing the center-based provider survey. Largely following guidelines from the National Association for the Education of Young Children (NAEYC), we determined whether a classroom met recommended thresholds as follows (NAEYC, 2016):

Child-adult ratio:

- Infant/toddler classrooms: 6 or smaller
- Preschool classrooms: 10 or smaller

Group size

- Infant/toddler classrooms: 12 children or fewer
- Preschool classrooms: 20 children or fewer

Classrooms were classified as follows: (a) meets neither group size nor ratio standards for the ages served, (b) meets either group size or ratio standards for the ages served, or (c) meets both group size and ratio standards for the ages served.

To measure *stability of classroom assignments*, teachers were asked how often, in the past week, they had been moved to a different classroom or group of children. Teachers could say never, once, or more than once. We categorized responses as “once or more” or “never.”

### Informal Workforce Supports

Three variables assessed teachers’ perceptions of their center. *Respected at work* was based on agreement with the statement, “My coworkers and I are treated with respect on a day-to-day basis.” *Teamwork encouraged* was based on responses to the statement, “Teamwork is encouraged.” *Help dealing with difficulties* was based on responses to the statement, “I have help dealing with difficult children or parents.” Responses for each item ranged from (1) strongly disagree to (5) strongly agree.



## Overview of Analyses in This Report

- **Descriptive analyses.** The first set of results describes levels of psychological distress among teachers in center-based ECE programs.
- **Multivariate analysis.** The second set of results describes the final model from a series of multivariate regressions, which ask how the factors of interest are associated with teachers' psychological distress when considered simultaneously. Although all three steps in this series of multivariate regressions are described below, we focus on interpreting the third regression model in the report because it explains the greatest amount of variance in teachers' psychological distress.
  - The first regression includes important control variables, including teachers' demographic characteristics and basic information about the setting, such as program funding source and classroom age group.
  - The second regression includes all variables in the first regression and adds formal workforce supports: coaching/mentoring, group size/ratio, substantive supervision, financial support for PD, and stability of classroom assignments. By controlling for the variables in the first regression, we ask whether formal workforce supports are uniquely associated with teachers' psychological distress.
  - The third regression includes all variables from the second regression and adds informal workforce supports, such as whether teachers feel respected at work. This regression asks whether these features predict distress beyond the effect of demographics and more formal workforce supports.
- To supplement these findings, **Appendix B** includes results from **bivariate analyses** that ask whether each variable of interest is associated with ECE teachers' distress, without controlling for the other variables.

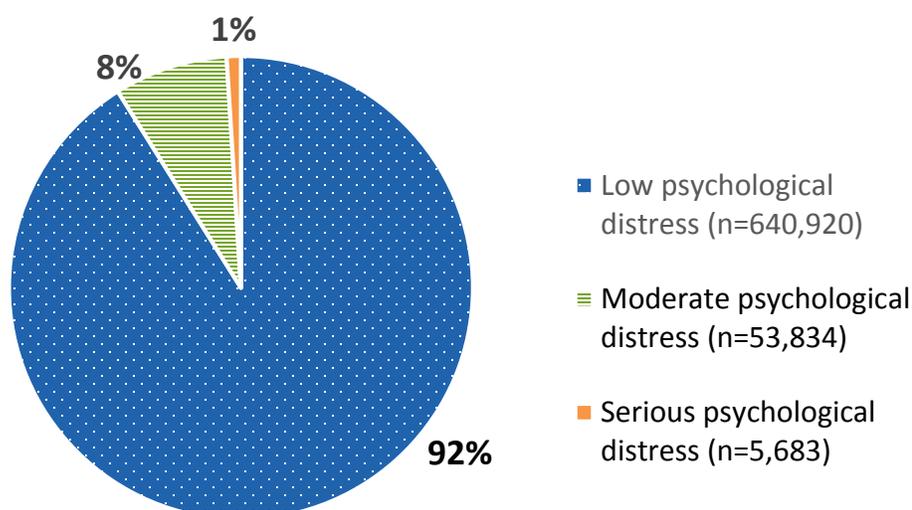
## Findings

### Distress in the ECE workforce

*Descriptive analyses: How psychologically distressed is the ECE workforce?*

Most ECE teachers had low psychological distress (92 percent; see Figure 2). Nearly 8 percent had moderate psychological distress, and less than 1 percent of teachers had serious psychological distress.

**Figure 2.** Prevalence of Psychological Distress among Center-Based ECE Teachers



Source: Authors' analysis of the NSECE center-based workforce survey.

Note: The NSECE workforce weight was applied to create population-level estimates. Psychological distress was measured using the Kessler-6 (K6), which has a possible range from 0–24. Low psychological distress: K6 scores from 0 to 6; moderate psychological distress: K6 scores from 7 to 12; serious psychological distress: K6 scores of 13 or higher.

Across ECE teachers, the average distress score was 2.6. In other words, the average teacher had experienced two to three symptoms (e.g., “felt hopeless”) “a little of the time,” and experienced the remaining symptoms “none of the time” over the past 30 days. See **Appendix A, Table 1** for full results.

### Factors associated with distress in the ECE workforce

*Multivariate analyses: When looking at all predictors simultaneously, which emerge as important predictors of teacher psychological distress?*

The three multivariate regression models are presented in **Appendix A, Table 2**. The first regression explained just 7 percent of the variance in teachers' psychological distress, and the second a mere 9 percent. This section discusses findings from the third (final) regression, as this explained 17 percent of the variance in teachers' psychological distress.

**A few demographic characteristics were associated with distress.** Although ECE teachers with a high school education or less had the highest average levels of psychological distress, their distress levels were only *significantly* higher than those of teachers with *some college* and teachers with an *associate's degree in a field related to early childhood development*. Compared to non-Hispanic White teachers, Asian teachers had more psychological distress. Black, Hispanic, and teachers from another race had similar levels of psychological distress to White teachers.

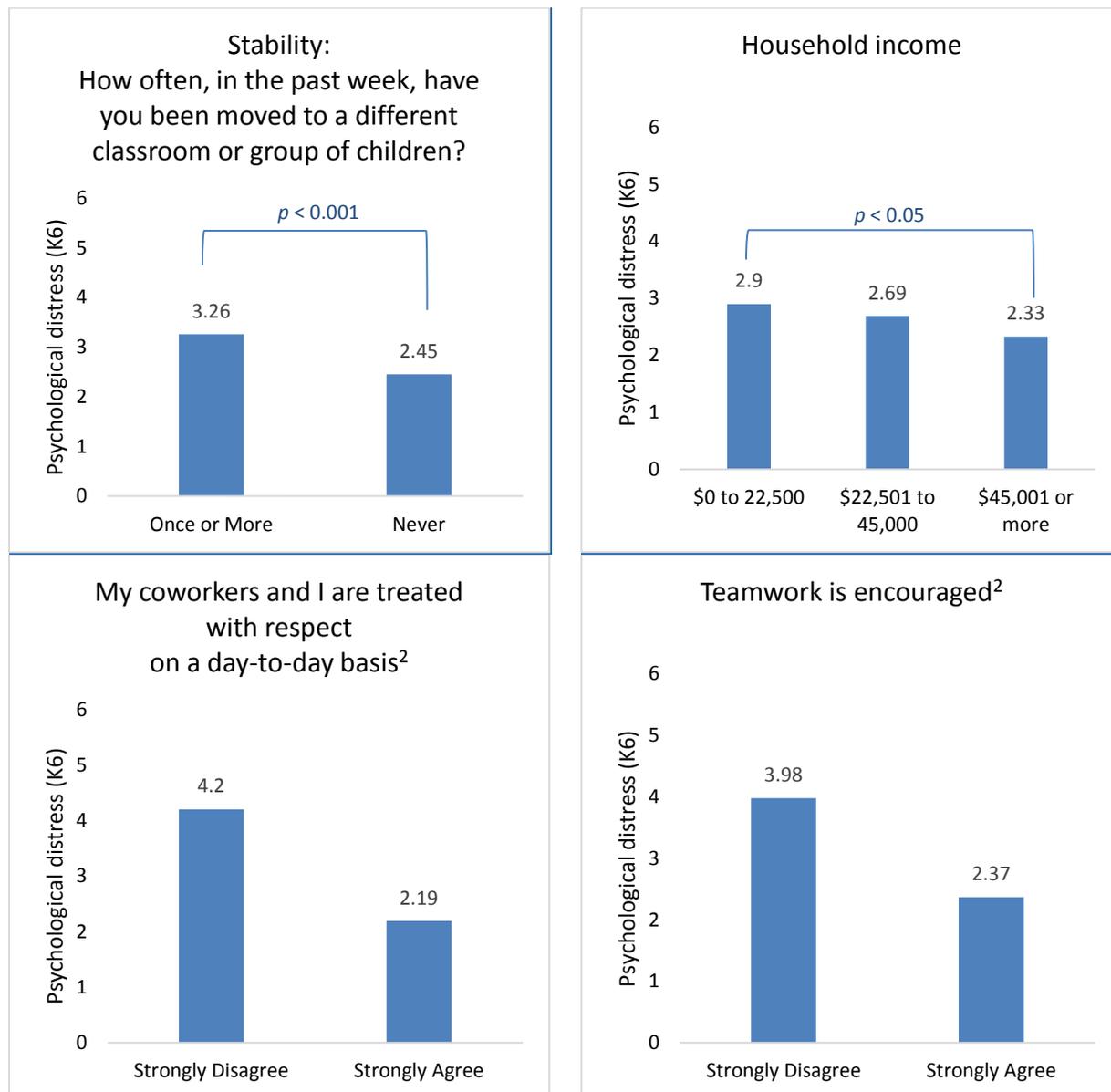
Teachers with higher annual household incomes had the least psychological distress. Specifically, those with annual household incomes over \$45,000 had significantly less psychological distress than those in the lowest income category (\$0–\$22,500 per year; see **Figure 3**). **Appendix A, Table 3** presents descriptive information about teachers in each household income category.

The program funding source was unrelated to distress. There was no significant difference in the psychological distress of teachers in infant/toddler versus preschool classrooms. Teachers' age, language of survey, and health insurance coverage were unrelated to teachers' distress when accounting for all other variables considered here.

**Just one formal workforce support—a stable classroom assignment—was associated with teachers' psychological distress.** Teachers who had been moved to another classroom or another group of children in the past week had significantly higher levels of psychological distress, compared to those who were not. In contrast, working in a center that provided coaching/mentoring, or financial support for PD, was not significantly associated with teachers' psychological distress. Similarly, receiving substantive supervision at least once per year and meeting thresholds for group size/ratio were not significantly associated with teachers' psychological distress.

**Two informal workforce supports were significant predictors of teachers' psychological distress (see Figure 3).** Teachers who felt that their program encouraged teamwork, and those who felt respected at work, were less distressed. Having help dealing with difficult children and parents was not associated with teachers' distress.

**Figure 3:** How are Teacher Characteristics and Workforce Supports Associated with Psychological Distress<sup>1</sup> among Center-Based ECE Teachers?



Source: Authors' analysis of the National Survey of Early Care and Education (NSECE) center-based workforce survey and center-based provider survey.

Notes: Figures present K6 scores after adjusting for the effects of all other variables in model. These variables included teacher education level/major, teacher age, teacher race/ethnicity, survey language, teacher marital status, program funding source, classroom age group, teacher household income, teacher source of health insurance, classroom group size/ratio, program provides coaching/mentoring, teacher receives substantive supervision, program provides financial support for professional development, stable classroom assignments, teacher's belief that program encourages teamwork, teacher's belief that teacher and co-workers are treated with respect, and teacher has help dealing with difficult children and parents.

<sup>1</sup> Psychological distress was measured using the Kessler-6 (K6), which has a potential range of 0–24. Scores of 13 or higher indicate serious psychological distress. <sup>2</sup> Agreement was measured on a scale from 1 (strongly disagree) to 5 (strongly agree). The linear association between the measure of agreement and the K6 was significant at the  $p < 0.01$  level ("teamwork is encouraged") or  $p < 0.001$  level ("treated with respect").

## Summary and Implications

Approximately one million teachers and caregivers work with young children in center-based early care and education programs across the United States (NSECE Project Team, 2013). When these teachers are not psychologically healthy, the quality of their interactions with children may suffer (Hamre & Pianta, 2004; Jeon, Buettner, & Snyder, 2014). This study sought to identify workforce supports associated with lower psychological distress among teachers in center-based ECE programs.

**First, we found that less than 1 percent of ECE teachers had serious psychological distress (i.e., a K6 score of 13 or higher),** whereas national samples find prevalence rates closer to 4 percent among all women ages 18–44 (Clarke, Norris, & Schiller, 2017). Still, *average* levels of psychological distress in the NSECE were very similar to population levels in adult females (2.5), and to levels found in a sample of Head Start teachers (2.8) (Li-Grining, et al., 2010; Bratter & Eschbach, 2005).

One explanation for the discrepancy between levels of serious psychological distress among ECE teachers and the general population is that all ECE teachers are employed. Compared to unemployed adults, employed adults are less likely to meet the research-based threshold for serious psychological distress (Bratter & Eschbach, 2005). Previous research using the K6 has shown that individuals who meet this threshold are much more likely to have a mood or anxiety disorder coupled with impaired daily functioning, compared to individuals with lower K6 scores (Kessler, et al., 2003). ECE teachers who develop such serious distress may leave their jobs voluntarily, or be asked to leave because they cannot meet the day-to-day demands. The NSECE data can only give a snapshot of teachers who were in their profession at the time of the survey.

Indeed, a study of Head Start teachers found that none of the 90 teachers in the sample met the threshold for serious psychological distress (Li-Grining, et al., 2010). An important implication of our finding is that very few children in center-based care will have caregivers with serious psychological distress. Nonetheless, with nearly 8 percent of ECE teachers reporting moderate levels of psychological distress, our findings suggest that many ECE teachers could benefit from increased mental-health related supports.

**Second, workforce supports—especially informal workforce supports—were significantly associated with teachers’ psychological distress.** Of all formal supports considered, only classroom stability (i.e., staying in the same classroom or with the same group of children over the past week) was associated with significantly lower levels of psychological distress for teachers. Other formal supports, including group size/ratio requirements, coaching/mentoring availability, substantive supervision, and financial support for professional development were unrelated to teachers’ psychological distress.

Two informal workforce supports—feeling respected at work and perceiving that teamwork was encouraged—were also associated with lower levels of psychological distress. Having help dealing with difficult children and parents was not associated with teachers’ distress. The implications of these findings are described below.

## Limitations of the present study

An important limitation of the current study is that teachers described their workforce supports at the same time they reported their distress. As a result, it is impossible to know whether workforce supports led to reduced psychological distress, or whether psychological distress affected teachers' perceptions and experiences within their ECE program. For example, teachers with more psychological distress may *perceive* their coworkers to be less respectful. Longitudinal studies of teachers that examine workforce supports at one timepoint—and measure teachers' psychological well-being over months and years—are necessary to understand the dynamic relationship between perceived workforce supports and teachers' psychological distress.

## Implications for ECE programs

While our findings are not causal, they suggest that ECE programs with a supportive and rewarding workplace climate may be beneficial for ECE teachers' psychological health. Programs should further explore aspects of workplace climate, including teamwork and respect, as well as a broader range of possible supports and practices to strengthen social connections and esteem among employees. Finally, programs should consider a range of practices or conditions that may alleviate financial or material stressors for teachers, given our finding that teachers with higher household incomes had lower levels of psychological distress.

The majority of formal workforce supports that we examined were not associated with teachers' psychological distress, but they are important for other reasons. For example, classrooms that meet ratio and group size requirements keep children safe and allow teachers to offer high-quality interactions with children (Vandell, 1996; National Research Council, 1990). Providing financial support for professional development activities can ensure that teachers obtain the knowledge necessary for their jobs (e.g., health and safety training). Coaching can be an effective way to help teachers learn specific skills, such as how to implement a curriculum or have high-quality interactions with children (Aikens & Akers, 2011; Zaslow, Tout, Halle, Whittaker, & Lavelle, 2010).

Why weren't more formal workforce supports associated with teachers' psychological distress? While the analyses described above did not address this question, we have several hypotheses. First, **we do not know whether teachers took part in the professional development opportunities offered in their programs**. Second, it is possible that **professional development opportunities or requirements could be another source of stress for teachers**: Attending a workshop may require a teacher to plan for a substitute teacher, lose time with family in the evenings or on weekends, and/or travel farther than their typical commute. Teachers may also feel unwanted pressure from their program to participate in professional development. Third, most professional development activities are not individualized. A professional development activity that is focused on children's health and safety, or a math curriculum, will not help a teacher who feels that she must solve challenges alone without support from colleagues.

Contrary to prior research among the general population (Pratt, Dey, & Cohen, 2007), we found that teachers with and without health insurance coverage had similar levels of distress after controlling for background characteristics and other workforce supports. This is not to say that insurance coverage is unimportant; previous research shows that individuals with serious psychological distress are more

likely to lack health insurance (Pratt, Dey, & Cohen, 2007). It may be that the type of coverage (e.g., mental health coverage) and amount of employee contribution are more important than simply having coverage; however, these variables were not available in the NSECE.

### Implications for research

**One clear next step for research is to determine whether psychological distress in the ECE workforce is negatively associated with children’s well-being.** The current study found that few teachers had serious psychological distress, so it will be important to know whether even moderate levels of psychological distress for an ECE teacher could negatively affect children’s social, emotional, and cognitive development.

**Second, researchers could capitalize on longitudinal study designs to understand how various workforce supports, teachers’ psychological distress, and employment status are related over time.** Such a design could clarify, for example, whether the low prevalence of serious psychological distress observed in the NSECE is due to distressed teachers exiting the workforce. This design could also ask whether workforce supports might reduce employee turnover in ECE programs by supporting teachers’ psychological well-being.

**Researchers could also examine predictors of psychological distress among home-based ECE teachers and caregivers.** The NSECE provides an opportunity for such analyses, although different predictors must be specified given that home-based teachers and caregivers create their own workplaces. For example, instead of asking whether a home-based teacher or caregiver feels respected by her coworkers, one could ask whether she feels respected by the parents of children she cares for.

**Future studies focused on psychological well-being in the ECE workforce can include more specific measures than those included in the NSECE.** Studies might ask whether the ECE program’s coaching program included mental health consultation, as opposed to collecting general information about whether teachers received coaching of any kind. Knowing whether a teacher’s health insurance covers mental health services would be important as well. Studies can also ask about previous diagnoses of mental illnesses, as Whitaker and colleagues did (Whitaker, Becker, Herman, & Gooze, 2013). Teachers receiving treatment may have symptoms under control, making it less likely for symptom rating scales such as the K6 to classify these teachers as distressed.

**Finally, researchers should further explore the association between ECE teachers’ household income and their psychological distress.** Consistent with our findings, other research indicates that total household income is an important factor in adults’ psychological distress (Pratt, Dey, & Cohen, 2007). Researchers should seek to understand how income may contribute to ECE teachers’ psychological distress, such as through individual wages, financial security, material hardship, or perceived inequality. Researchers should also explore practices or conditions that may alleviate financial or material stressors for ECE teachers.



## Appendix A: Data Tables

**Appendix A, Table 1.** Distribution of Psychological Distress among ECE Teachers in Center-based Programs, Measured Using the Kessler-6 (K6).

	K6 Score Mean	Std. Err. of Mean	Un-weighted Frequency	Weighted Frequency	Std. Dev. of Weighted Frequency	Weighted Percent	Std Err of Weighted Percent
<b>Continuous (raw) K6 Score</b>	2.60	0.08	3,363	700,436	31,044	100%	--
<b>K6 Categories</b>							
Low (K6 Score: 0 – 6)	--	--	3,067	640,920	29,024	92%	0.86
Moderate (K6 Score: 7-12)	--	--	273	53,834	6,175	8%	0.81
Serious (K6 Score: 13+)	--	--	23	5,683	2,127	1%	0.30

*Source.* Authors' analysis of the NSECE public-use center-based workforce survey.

*Note.* The NSECE workforce weight was applied to create population-level estimates.

**Appendix A, Table 2.** Multivariate Regressions: Predicting Kessler-6 Scores in Center-based ECE Teachers (N = 2,367).

Variable	Model 1		Model 2		Model 3	
	R-squared: 0.07		R-Squared: 0.09		R-Squared: 0.16	
	b	SE	b	SE	b	SE
<b>Intercept</b>	<b>3.12***</b>	<b>0.45</b>	<b>2.85***</b>	<b>0.43</b>	<b>7.30***</b>	<b>0.87</b>
<b>Education Level/Major</b>						
Advanced degree	<i>Reference</i>					
HS or less	0.42	0.37	0.43	0.38	0.29	0.35
Some college	-0.17	0.32	-0.20	0.31	-0.19	0.30
AA in field unrelated to ECD	-0.34	0.64	-0.29	0.64	-0.38	0.61
AA/BS/AB in field unrelated to ECD	-0.25	0.44	-0.16	0.45	-0.19	0.44
AA in field related to ECD	-0.42	0.33	-0.39	0.33	-0.51	0.33
BA/BS/AB in field related to ECD	-0.02	0.32	-0.01	0.31	-0.06	0.30
<b>Teacher Age</b>						
18-44	<i>Reference</i>					
45-64	<b>-0.42*</b>	0.21	<b>-0.36+</b>	<b>0.21</b>	-0.21	0.21
65+	0.24	1.05	0.33	1.01	0.26	1.03
<b>Race/Ethnicity</b>						
White (Non-Hispanic)	<i>Reference</i>					
Black (Non-Hispanic)	<b>0.49+</b>	<b>0.29</b>	0.44	0.29	0.41	0.26
Asian (Non-Hispanic)	<b>1.12*</b>	<b>0.44</b>	<b>1.95*</b>	<b>0.40</b>	<b>1.09**</b>	<b>0.42</b>
Other (Non-Hispanic)	1.2	0.76	0.88	0.76	0.99	0.7
Hispanic/Latino (all races)	0.27	0.30	0.20	0.30	0.17	0.3
<b>Survey Language</b>						
English	<i>Reference</i>					
Spanish	-0.3	0.57	-0.05	0.58	-0.34	0.55
<b>Marital Status</b>						
Married or living with partner	<i>Reference</i>					
Never married, not living with partner	0.18	0.28	0.23	0.27	0.15	0.26
Separated/divorced	0.20	0.29	0.23	0.29	0.08	0.26
Widowed	<b>-1.49*</b>	<b>0.55</b>	<b>-1.48*</b>	<b>0.63</b>	<b>-1.14+</b>	<b>0.6</b>
<b>Household Income</b>						
\$0 to \$22,500	<i>Reference</i>		<i>Reference</i>		<i>Reference</i>	
\$22,501 to \$45,000	-0.14	0.23	-0.08	0.23	-0.21	0.22
\$45,000 or more	<b>-0.66*</b>	<b>0.27</b>	<b>-0.56*</b>	<b>0.26</b>	<b>-0.57*</b>	<b>0.25</b>
<b>Teacher's Health Insurance</b>						
No coverage of any type	<i>Reference</i>		<i>Reference</i>		<i>Reference</i>	
Private plan from employer/workplace, other insurance type	-0.24	0.27	-0.15	0.26	-0.02	0.25
Private plan through your spouse or partner's employment	-0.33	0.30	-0.26	0.29	-0.38	0.27
Private plan purchased directly	-0.64	0.41	<b>-0.71+</b>	<b>0.41</b>	-0.6	0.38
Private plan through a state or local government or community program	-0.79	0.53	-0.73	0.54	-0.94	0.63
Medicaid, Medicare, or military health care	-0.55	0.45	-0.59	0.44	-0.48	0.4

**Appendix A, Table 2 (continued).** Multivariate Regressions: Predicting Kessler Scores in Center-based ECE Teachers (N = 2,367).

Variable	Model 1		Model 2		Model 3	
	b	SE	b	SE	b	SE
Other insurance or combination of insurance types	-0.08	0.58	-0.02	0.56	0.12	0.49
<b>Program Funding Source</b>						
Other centers	<i>Reference</i>					
School-sponsored centers	1.17	0.73	<b>1.20+</b>	<b>0.70</b>	0.99	0.7
Head Start but not public school	0.25	0.26	0.25	0.20	0.21	0.27
Public Pre-K (not public school or Head Start)	-0.22	0.20	-0.25	0.20	-0.14	0.19
<b>Classroom Age Group</b>						
Preschool	<i>Reference</i>					
Infant/Toddler	-0.05	0.19	-0.11	0.19	-0.13	0.19
<b>Classroom Group Size/Ratio</b>						
Meets both group and ratio standards			<i>Reference</i>		<i>Reference</i>	
Meets either group or ratio standards			0.06	0.28	0.09	0.27
Meets neither group nor ratio standards			0.12	0.43	0.05	0.41
<b>Program provides coaching or consultation</b>						
Yes			<i>Reference</i>		<i>Reference</i>	
No			-0.28	0.20	-0.29	0.20
<b>Program provides financial support for professional development</b>						
Yes			<i>Reference</i>		<i>Reference</i>	
No			0.33	0.22	0.39	0.21
<b>Teacher receives substantive supervision</b>						
Yes			<i>Reference</i>		<i>Reference</i>	
No			0.38	0.36	0.19	0.35
<b>Stability: Moved Classrooms or Groups in Past Week</b>						
Never			<i>Reference</i>		<i>Reference</i>	
Once or more			<b>0.92***</b>	<b>0.26</b>	<b>0.81***</b>	<b>0.24</b>
<b>Teamwork is encouraged</b>					<b>-0.40**</b>	<b>0.17</b>
<b>Teacher feels respected</b>					<b>-0.50***</b>	<b>0.13</b>
<b>Teacher has help dealing with difficult children and parents</b>					-0.11	0.13

Source. Authors' analysis of the NSECE center-based workforce survey (quick-tabs, public use, and Level 1 restricted use) and center-based provider survey.

Notes. + p < .10, \* p < .05, \*\* p < .01, \*\*\* p < .001.

**Appendix A, Table 3.** Center-Based ECE Teacher Characteristics by 2011 Household Income

Teacher Characteristic Variables	0 to \$22,500			\$22,501 to \$45,000			\$45,001 or more			All Teachers with Income Data		
	Unweight. n	Weight. Percent of Teachers	Std. Err. Weight. Percent	Unweight. n	Weight. Percent of Teachers	Std. Err. Weight. Percent	Unweight. n	Weight. Percent of Teachers	Std. Err. Weight. Percent	Unweight. n	Weight. Percent of Teachers	Std. Err. Weight. Percent
<b>Gender</b>												
Male	22	2%	0.70	38	5%	1.71	34	2%	0.62	94	3%	0.61
Female	820	98%	0.69	886	95%	1.71	1,125	98%	0.62	2,831	97%	0.61
<b>Age</b>												
18-44	611	76%	2.60	539	56%	3.29	618	56%	2.85	1,768	62%	1.58
45-64	207	23%	2.62	344	42%	3.19	500	43%	2.86	1,051	37%	1.57
65+	9	1%	0.44	11	2%	0.95	16	1%	0.56	36	1%	0.38
<b>Marital Status<sup>1</sup></b>												
Married or living with partner	280	34%	2.76	440	53%	3.13	960	85%	2.11	1,680	61%	1.66
Never married, not living with partner	380	43%	3.10	280	25%	2.36	120	9%	1.58	770	23%	1.39
Separated/ Divorced	170	22%	2.24	170	20%	2.35	60	6%	1.45	400	15%	1.08
Widowed	†	†	†	40	2%	0.66	†	†	†	60	1%	0.36
<b>Education level/major</b>												
HS or less	225	28%	2.75	107	15%	2.21	66	8%	1.42	398	16%	1.26
Some College	295	38%	2.96	208	20%	2.35	190	19%	2.26	693	25%	1.56
AA in field unrelated to ECD or Education	27	5%	1.38	25	3%	0.97	37	4%	0.94	89	4%	0.61
BA/BS/AB in field unrelated to ECD or Education	30	4%	1.11	68	9%	1.83	95	10%	1.85	193	8%	1.03
AA in ECD, Education, or related field	124	12%	1.88	189	19%	2.46	151	11%	1.67	464	14%	1.19

**Appendix A, Table 3 (continued).** Center-Based ECE Teacher Characteristics by 2011 Household Income

Teacher Characteristic Variables	0 to \$22,500			\$22,501 to \$45,000			\$45,001 or more			All Teachers with Income Data		
	Unweight. n	Weight. Percent of Teachers	Std. Err. Weight. Percent	Unweight. n	Weight. Percent of Teachers	Std. Err. Weight. Percent	Unweight. n	Weight. Percent of Teachers	Std. Err. Weight. Percent	Unweight. n	Weight. Percent of Teachers	Std. Err. Weight. Percent
BA/BS/AB in ECD, Education, or related field	111	12%	1.83	233	25%	2.63	363	31%	2.44	707	24%	1.48
Advanced degree in any field	27	2%	1.02	92	8%	1.52	248	18%	2.11	367	10%	1.07
<b>Race/Ethnicity</b>												
White (Non-Hispanic)	329	50%	1.34	448	59%	3.33	803	79%	2.21	1,580	64%	2.11
Black (Non-Hispanic)	291	30%	1.06	213	19%	2.57	119	9%	1.68	623	18%	1.82
Asian (Non-Hispanic)	14	1%	0.22	43	2%	0.57	48	2%	0.51	105	2%	0.39
Other (Non-Hispanic)	32	3%	0.32	33	3%	0.58	27	2%	0.64	92	2%	0.48
Hispanic/Latino (all races)	174	16%	0.66	184	18%	2.37	159	8%	1.42	517	13%	1.27
<b>Language of survey</b>												
English	800	99%	0.29	894	100%	0.11	1128	100%	0.01	2,822	100%	0.09
Spanish	23	1%	0.29	11	0%	0.11	2	0%	0.01	36	0%	0.09
<b>Program Funding Source</b>												
School-sponsored centers	22	1%	0.18	34	5%	1.44	119	9%	1.68	175	6%	0.99
Head Start but not public school	109	10%	0.49	199	21%	3.03	164	10%	1.64	472	13%	1.26
Public Pre-K but not public school or Head Start	185	22%	0.90	196	17%	2.07	234	22%	2.22	615	21%	1.45
Other Center	527	66%	1.31	496	57%	3.31	642	59%	2.87	1,665	61%	1.96

**Appendix A, Table 3 (continued).** Center-Based ECE Teacher Characteristics by 2011 Household Income

Teacher Characteristic Variables	0 to \$22,500			\$22,501 to \$45,000			\$45,001 or more			All Teachers with Income Data		
	Unweight. n	Weight. Percent of Teachers	Std. Err. Weight. Percent	Unweight. n	Weight. Percent of Teachers	Std. Err. Weight. Percent	Unweight. n	Weight. Percent of Teachers	Std. Err. Weight. Percent	Unweight. n	Weight. Percent of Teachers	Std. Err. Weight. Percent
<b>Classroom Age Group</b>												
Infant / Toddler	455	60%	2.72	378	45%	3.13	335	33%	2.49	1,168	44%	1.18
Preschool	388	41%	2.72	547	55%	3.13	824	67%	2.49	1,759	56%	1.72
<b>Insurance Coverage</b>												
No coverage of any type	284	43%	2.89	202	23%	2.53	102	11%	2.02	588	24%	1.56
Private health insurance from employer/workplace, other insurance type(s)	197	22%	2.53	408	45%	3.00	435	34%	2.82	1,040	34%	1.75
Private health insurance plan spouse or partner's employment	56	9%	2.20	84	12%	2.15	410	44%	3.18	550	24%	1.65
Private health insurance plan purchased directly	34	5%	1.28	38	6%	1.60	33	4%	1.26	105	5%	0.77
Private health insurance plan through a state or local govt or community program	29	1%	0.28	31	4%	1.08	13	1%	0.38	73	2%	0.37
Medicaid, Medicare, or Military health care	117	13%	1.85	54	6%	1.45	22	3%	0.95	193	6%	0.78

**Appendix A, Table 3 (continued).** Center-Based ECE Teacher Characteristics by 2011 Household Income

Teacher Characteristic Variables	0 to \$22,500			\$22,501 to \$45,000			\$45,001 or more			All Teachers with Income Data		
	Unweight. n	Weight. Percent of Teachers	Std. Err. Weight. Percent	Unweight. n	Weight. Percent of Teachers	Std. Err. Weight. Percent	Unweight. n	Weight. Percent of Teachers	Std. Err. Weight. Percent	Unweight. n	Weight. Percent of Teachers	Std. Err. Weight. Percent
Other insurance or combination of insurance types	36	6%	1.49	30	3%	1.06	36	4%	1.15	102	4%	0.67

*Source.* Authors' analysis of the NSECE center-based workforce survey (quick-tabs, public use, and Level 1 restricted use) and center-based provider survey.

*Notes.* † Value suppressed due to small n. <sup>1</sup>Values are rounded or suppressed to protect the identity of participants.

## Appendix B: Results from Bivariate Analyses

### Overview

This appendix includes results from bivariate regressions that asked whether center-based ECE teachers' distress is associated with each variable of interest. In each regression, teachers' psychological distress is the dependent variable. One variable of interest (e.g., classroom age group) is the independent variable.

For predictor variables with **discrete categories**, such as classroom age group (infant/toddler versus preschool), we ask whether the teachers in each category have significantly different K6 scores.

For predictor variables that are measured on a **continuous scale**, such as teachers' perception of teamwork (rated from 1 = strongly disagree to 5 = strongly agree), we ask whether the regression coefficient for the predictor variable is significantly different from 0.

### Results

**Appendix B Table 1** shows the results from bivariate analyses examining the link between each teacher and child care characteristic to teachers' K6 score.

**Significant associations with the K6 were found for teacher age, marital status, race/ethnicity, household income, and insurance coverage.** Teachers who were younger (ages 18-44) as opposed to middle-aged (ages 45-64) had significantly more psychological distress. Teachers who were never married/not living with a partner had significantly more psychological distress, compared to teachers who were married/living with a partner. Compared to non-Hispanic White teachers, Hispanic teachers, Black teachers, and Asian teachers had significantly more psychological distress.

Compared to teachers with household incomes between \$0 - \$22,500, teachers in the middle and highest income categories (i.e., \$22,501 - \$45,000 and \$45,001 or more) had significantly less psychological distress. Compared to teachers without insurance coverage, teachers had significantly less psychological distress if they had private insurance through their spouse or partner's employment, or private insurance purchased directly. Notably, having insurance through the teachers' employer was *not* associated with significantly less psychological distress, compared to having no coverage at all.

Psychological distress did not vary by teacher education level/major or language of survey, or by the program funding source or classroom age group.

**Most formal workforce supports were not significantly associated with teachers' psychological distress.** Only stability of classroom assignment was associated with teachers' distress: Teachers who stayed with the same classroom or group of children over the past week had significantly less distress. Being in a classroom that met the group size and/or ratio standards was not significantly associated with teachers' psychological distress. Other formal supports that were examined, but were not associated with psychological distress, included being in a center that offered financial support for professional development, being in a center that offered coaching, mentoring, or consultation, and receiving substantive supervision.

**Several informal workforce supports were individually significantly associated with less distress.**

Teachers who perceived more teamwork in the workplace, felt more respected at work, and reported that they had help dealing with difficult children and families had significantly less distress.

**Appendix B Table 1.** Bivariate Associations between Center-Based ECE Teachers' Characteristics/Workforce Supports and Psychological Distress Scores Measured with the Kessler-6 (K6).

Categorical Variables	K6 Mean Scores		
	K6 Score Mean <sup>a</sup>		Std. Err of Mean
<b>Age</b>			
18-44	2.86	B	0.12
45-64	2.23	A	0.14
65+	1.84	AB	0.58
<b>Marital Status</b>			
Married or living with partner	2.39	A	0.11
Never married, not living with partner	3.12	B	0.20
Separated/Divorced	2.76	AB	0.20
Widowed	2.15	AB	0.73
<b>Education level/major</b>			
HS or less	2.89	A	0.25
Some College	2.61	A	0.15
AA in field unrelated to ECD or Education	2.46	A	0.54
BA/BS/AB in field unrelated to ECD or Education	2.43	A	0.35
AA in ECD, Education, or related field	2.39	A	0.20
BA/BS/AB in ECD, Education, or related field	2.73	A	0.18
Advanced degree in any field	2.28	A	0.22
<b>Race/Ethnicity</b>			
White (Non-Hispanic)	2.36	A	0.10
Black (Non-Hispanic)	2.92	B	0.24
Asian (Non-Hispanic)	3.74	B	0.53
Other (Non-Hispanic)	3.62	AB	0.64
Hispanic/Latino (all races)	3.07	B	0.24
<b>Language of survey</b>			
English	2.57	A	0.09
Spanish	2.60	A	0.40

**Appendix B Table 1 (continued).** Bivariate Associations between Center-Based ECE Teachers' Characteristics/Workforce Supports and Psychological Distress Scores Measured with the Kessler-6 (K6).

Categorical Variables	K6 Mean Scores		
	K6 Score Mean <sup>a</sup>		Std. Err of Mean
<b>Household Income</b>			
\$0 to 22,500	3.29	B	0.19
\$22,501 to 45,000	2.66	A	0.16
\$45,001 or more	2.27	A	0.11
<b>Insurance Coverage</b>			
No coverage of any type	2.99	C	0.22
Private health insurance from employer/workplace, other insurance type(s)	2.68	BC	0.15
Private health insurance plan spouse or partner's employment	2.22	A	0.16
Private health insurance plan purchased directly	2.09	AB	0.29
Private health insurance plan through a state or local govt or community program	2.48	ABC	0.42
Medicaid, Medicare, or Military health care	2.58	ABC	0.31
Other insurance or combination of insurance types	2.45	ABC	0.44
<b>Program Funding Source</b>			
School-sponsored centers	3.26	A	0.54
Head Start but not public school	2.77	A	0.20
Public Pre-K but not public school or Head Start	2.58	A	0.18
Other Center	2.51	A	0.11
<b>Classroom Age Group</b>			
Infant / Toddler	2.68	A	0.15
Preschool	2.53	A	0.11
<b>Group Size/Ratios</b>			
Meets neither group size nor ratio standards	2.86	A	0.31
Meets either group size or ratio standards	2.47	A	0.21
Met both group size and ratio standards	2.58	A	0.10
<b>Program Offers Coaching, Mentoring, or Consultation</b>			
No	2.53	A	0.13
Yes	2.66	A	0.12

**Appendix B Table 1 (continued).** Bivariate Associations between Center-Based ECE Teachers' Characteristics/Workforce Supports and Psychological Distress Scores Measured with the Kessler-6 (K6).

Categorical Variables	K6 Mean Scores		
	K6 Score Mean <sup>a</sup>		Std. Err of Mean
<b>Substantive Supervision</b>			
No	2.89	A	0.26
Yes	2.56	A	0.09
<b>Financial Support for Professional Development</b>			
No	2.89	A	0.16
Yes	2.52	A	0.09
<b>Stability: Moved Classrooms/Children in the Past Week</b>			
Once or More	3.39	A	0.23
Never	2.41	B	0.08
Continuous Variables	Predicting K6 <sup>b</sup>		
	Variable Coefficient		Model R-Squared
<b>Teamwork is Encouraged</b> (1 = Strongly Disagree; 5 = Strongly Agree)	-0.65***		0.043
<b>Teachers feel respected at work</b> (1 = Strongly Disagree; 5 = Strongly Agree)	-0.74***		0.068
<b>Teachers have help dealing with difficult children and families;</b> (1 = strongly disagree; 5 = Strongly Agree)	-0.54***		0.033
Source: Authors' analysis of the NSECE center-based workforce survey (quick-tabs, public use, and Level 1 restricted use) and center-based provider survey.			
Notes: <sup>a</sup> Within each variable, mean K6 scores sharing a letter are not significantly different at the $p < .05$ level. <sup>b</sup> Results are from three separate bivariate regressions. For each regression, K6 scores were the dependent variable and the corresponding teacher characteristic was the independent variable.			
** $p < .01$ , *** $p < .001$			

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