

Center- and Program-Level Factors Associated with Turnover in the Early Childhood Education Workforce

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Center- and Program-Level Factors Associated with Turnover in the Early Childhood Education Workforce

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Staff turnover is a pressing problem in early childhood education. High turnover can create organizational instability and distract from the care and education mandate of early childhood education centers. The Early Childhood Workforce Development Research Alliance of the Regional Educational Laboratory Northeast & Islands wants to better understand the factors associated with turnover in the early childhood educator workforce. Using data from the 2012 National Survey of Early Care and Education, this study found that a low average turnover rate across early childhood education centers obscured systematic variation in turnover patterns across types of centers and programs, with high turnover rates in some types. Higher wages were associated with lower turnover rates across centers. Turnover rates were highest among private-pay centers serving children ages 0–5. Nonwage benefits such as health insurance and retirement benefits and paid time off for professional development were generally unrelated to turnover rates. Educators were also clustered into certain center types based on background characteristics; Black educators and educators with lower educational attainment more likely to work in centers with low wages and high turnover.

Why this study?

Turnover rates are as high as 25–30 percent in some early childhood education settings (Institute of Medicine & National Research Council, 2012). Turnover in the early childhood educator workforce is a critical issue because it affects the quality of children’s early childhood education environment and has been linked to weakened language and social development (Cassidy et al., 2011; Hale-Jinks et al., 2006; Hatfield et al., 2016; Whitebook et al., 1990). Turnover among early childhood educators also influences school effectiveness, because of the considerable academic and financial costs of teacher turnover for student learning and school budgets (Carver-Thomas & Darling-Hammond, 2019). Despite the importance of workforce stability, there has been little research on the correlates of turnover among early childhood educators, in particular on the link between working conditions and turnover in early childhood education centers (Cumming, 2017; Hall-Kenyon et al., 2014; Totenhagen et al., 2016; Wells, 2015).

This study used national-level data from the 2012 National Survey of Early Care and Education (NSECE) to explore turnover rates in the early childhood educator workforce across different types of early childhood education centers and to identify predictors of higher and lower turnover rates. Data from the 2012 NSECE are nearly a decade old, and many policy and program changes have occurred in the intervening years that may have altered the landscape of educator turnover. Nevertheless, this study addressed previously unanswered questions using the NSECE nationally representative sample. When data from the NSECE’s 2019 administration become available, it will be important to replicate these analyses to understand whether changes in the policy and program context are associated with changes in turnover patterns across early childhood education centers. (For an overview of center-level characteristics and key terms used in this study, see box 1.)

To inform policy and program guidance for early childhood education centers, members of the Early Childhood Workforce Development Research Alliance of the Regional Educational Laboratory Northeast & Islands want to better understand the factors that can contribute to or reduce turnover rates in the early

For additional information, including technical methods and supporting analyses, access the report appendixes at <https://go.usa.gov/xspbT>.

childhood educator workforce. The relationship between wages and turnover has been well documented in previous research about the early childhood educator workforce. Less well understood is how educator turnover rates vary across center and program types and working conditions. A better understanding of the relationships between educator turnover and center characteristics, including the nonwage benefits offered, age group served, funding structure, and staff and student composition, could help members of the alliance direct resources and interventions to the settings where they are most in demand or might be most effective.

Alliance members are well positioned to influence the early childhood educator workforce through formal regulations, nonregulatory guidance, and program funding. For example, Connecticut, among other states in the alliance, has prioritized reducing turnover rates for early childhood educators in state-funded early childhood education centers through initiatives such as the Quality Recognition and Improvement System Connecticut Office of Early Childhood General Policy, 2015). The system encourages the retention of early childhood education staff by awarding higher ratings to centers that offer reflective supervision, ample professional development, and opportunities for educational and professional advancement.

Research questions

This study addressed two research questions related to turnover in the early childhood education workforce:

1. What was the turnover rate across early childhood education centers in the United States in 2012?
2. What center characteristics (such as nonwage benefits and supports, age group served, funding structure, center size, and staff composition) were associated with center turnover rates?

Box 1. Key terms

Center characteristics. Traits used to describe early childhood education centers. Variables of interest include center size (measured by number of staff), wage level, whether the center offers health insurance or retirement benefits, whether the center shares resources with a school, student demographics, the region in which the center is located, and the funding source (program type) of the center.

Center-types. Centers are grouped according to common characteristics, for example low-wages, small staff sizes.

- **Higher-wage centers.** Centers in the top three quartiles of the average hourly wage distribution across the analytic sample. The average hourly wage at higher-wage centers in 2012 was \$16.73.
- **Low-wage centers.** Centers in the bottom quartile of the average hourly wage distribution across the analytic sample. The average hourly wage at low-wage centers was \$8.17.
- **Larger centers.** Centers in the top 75 percent of the distribution of centers by educator staff size. Larger centers had a median size of 12 educators and ranged from 6 to 75 educators.
- **Small centers.** Centers in the bottom 25 percent of the distribution of educator staff size. Small centers had a median size of four educators and ranged from one to five educators.
- **Private-pay centers.** The National Survey of Early Care and Education (NSECE) codes early care and education centers as receiving payment from some or all families, receiving payment from no families, or don't know/refused to answer. Private-pay centers receive payment from some or all families; centers that receive payment from no families are subsidized through a variety of funding streams. Private-pay centers are distributed across program types (see below), though unevenly. Roughly 20 percent of Head Start programs received some payment from families and thus are classified as private-pay, whereas 80 percent of centers in the "other" program type category were private pay.

Early childhood education center. Centers that provide early care and education to at least one child who is not yet in kindergarten.

Early childhood education workforce. People who work directly with non-school-age children for pay in early care and education settings in roles focused on teaching and caregiving.

Majority students of color. Centers with a proportion of White students of less than 50 percent.

Majority White. Centers with a proportion of White students of more than 50 percent.

Nonwage benefits. Health insurance or retirement benefits offered to early childhood educators employed at early care and education centers.

Ordinal logistic regression model. Used to predict the likelihood of being in a higher group of an ordered categorical variable. In this study ordinal logistic regression was employed to predict, based on multiple center characteristics, the likelihood of being in a higher turnover category compared with the low-turnover category.

Program types. Early child care and education centers are categorized in the NSECE by the following program types:

- **School-sponsored.** A public school district has administrative oversight or reporting requirements over the center. School-sponsored centers may be funded by public school districts, report to public school districts, or receive administrative oversight from public school districts.
- **Head Start.** A center-based program that reports funding for at least one child from Head Start dollars but that is not school-sponsored.
- **Public prekindergarten.** A center-based program that reports funding for at least one child from public prekindergarten dollars but that is not school-sponsored and reports no Head Start funding.
- **Other program types.** A center that was not school-based and reported no Head Start or public prekindergarten program funding. This category comprises private, parochial, and other nonpublic centers.

Survey weighting. Weighting observations in a survey sample to make them representative of the broader population. Larger weights are added for groups that are underrepresented in the sample, and lower weights are added for groups that are overrepresented.

Turnover rate. The proportion of educators working with children younger than age 13 who left their respective centers in the past 12 months. The NSECE includes only centers serving at least one child ages 0–5, but 45 percent of centers serve some school-age children as well.

Turnover category. One of three categories into which centers were classified based on turnover rate. **Low-turnover** centers had a turnover rate below 5 percent (first and second quartiles), **medium-turnover** centers had a turnover rate of 5–20 percent (third quartile), and **high-turnover** centers had a turnover rate of more than 20 percent (top quartile).

Wage level. Centers were divided into quartiles based on the average hourly wage (relative to local minimum wage). Centers in the bottom quartile of the wage distribution are characterized as **low-wage centers**. All other centers are identified as **higher-wage centers**.

This study analyzed data from the 2012 NSECE, which consisted of a cross-sectional sample of 8,265 early childhood education center–based programs and 5,556 early childhood educators (NSECE Project Team, 2017). (See box 2 for information about the data sources, sample, and methods and appendix A for additional details. See appendix B for supporting analyses, including sensitivity tests.)

Box 2. Data sources, sample, and methods

Data sources. This study is based on data from the 2012 National Survey of Early Care and Education (NSECE), a nationally representative survey sponsored by the U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research, and Evaluation (NSECE Project Team, 2017). The NSECE characterizes the use and availability of early childhood education centers in the United States.

The 2012 NSECE included a set of four integrated, nationally representative surveys: households with children younger than 13, home-based providers of early childhood education, center-based providers of early childhood education, and workers at center-based providers of early childhood education. Analyses presented here draw primarily on data from the center-based provider survey, which was administered to directors of centers that provide care and education to children not yet in kindergarten.¹ Some analyses also include data from the workforce survey, which was administered to one randomly selected educator who worked at least five hours a week in a randomly selected classroom from each surveyed center. Notably, these sources exclude home-based centers and workers in home-based early childhood education centers.

Sample. A total of 15,805 screening interviews were completed for the NSECE, for a weighted screener completion rate of 94.3 percent. Of these, representatives of 8,265 eligible center-based providers completed a center-based interview, yielding a weighted interview completion rate of 78.2 percent. The overall weighted response rate was 73.7 percent. The center-level analytic sample included 7,773 of the 8,265 centers with a completed screening interview and provider questionnaire. The analyses excluded the 492 centers that the study team determined not to have provided early childhood care and education. Early childhood education centers were identified using administrative lists of providers in the survey's 219 geographic primary sampling units and 755 secondary sampling units. For analyses that used individual-level data from the Workforce Provider Survey, the sample was reduced to 4,916 of the 5,556 early childhood education workforce members who responded to the Workforce Provider Survey, each of whom was employed at a different center. The 640 educators who reported that they did not teach in an early childhood setting were excluded from the workforce sample, and those centers are considered to have missing workforce respondent data. The overall weighted response rate for the workforce survey was 71.2 percent. Thus, analyses that incorporated individual-level data included only 4,916 of the 7,773 centers in the analytic sample. The study team used survey weights to account for sampling design and nonresponse error.

Methods. All early childhood education centers in the sample were classified into one of three categories based on the statistical distribution of the centers' turnover rates. The bottom two quartiles of the sample are in the low-turnover category, with less than 5 percent of educators leaving the center. About 95 percent of centers in the low-turnover category experienced no turnover in the year the survey was administered. The second quartile of centers had medium turnover rates of 5–20 percent in 2012. The top quartile included centers with high turnover rates of above 20 percent.

Chi-square tests were used to assess whether center characteristics were associated with the proportion of centers in each turnover category. *T*-tests were used to determine whether differences in turnover rates between centers with different characteristics were significant. There were significant amounts of missing data (more than 40 percent) for some survey items, including average wages. To maximize the size of the analytic sample and minimize bias in the results, the study team imputed missing values using predictive mean matching. Table B1 in appendix B compares samples across weighting and imputation status. For research question 2 the study team used a survey-weighted ordinal logistic regression to estimate the relationship between center-level turnover category and centers' supports and characteristics. Sampling weights correct for study design features such as oversampling of low-income areas or stratification by Head Start/public prekindergarten status and for survey nonresponse.

Note

1. The NSECE includes only centers that serve at least one child ages 0–5. About 44 percent of centers serve some school-age children as well. Turnover rates reflect turnover across an entire center, even among educators who work with school-age children. Analyses of data from the workforce survey included only respondents who worked with children ages 0–5. The limitations section of this report and the sensitivity analyses described in appendix A provide additional details.

Findings

The descriptive and regression analyses discussed below reveal that wages were predictive of turnover rates across early childhood education centers, with higher turnover rates at centers that paid lower hourly wages. Additionally, wages and turnover rates varied according to center characteristics. High turnover rates were most prevalent in private-pay centers serving children ages 0–5. This was true even after wages were controlled for in ordinal logistic regression models. Offering nonwage benefits was associated with turnover rates only in particular situations: low-wage centers and “other” program type centers that offer nonwage benefits were more likely to be in a higher turnover category, and centers with smaller staff sizes that did not offer nonwage benefits were less likely to be in a higher turnover category. In private-pay centers serving children ages 0–5, offering nonwage benefits was unrelated to turnover rates. Regression analyses showed no evidence that other policy and program initiatives were related to educator turnover rates. For instance, participation in a quality rating system or providing paid time off for professional development were unrelated to the likelihood of being in a higher turnover category in any type of center.

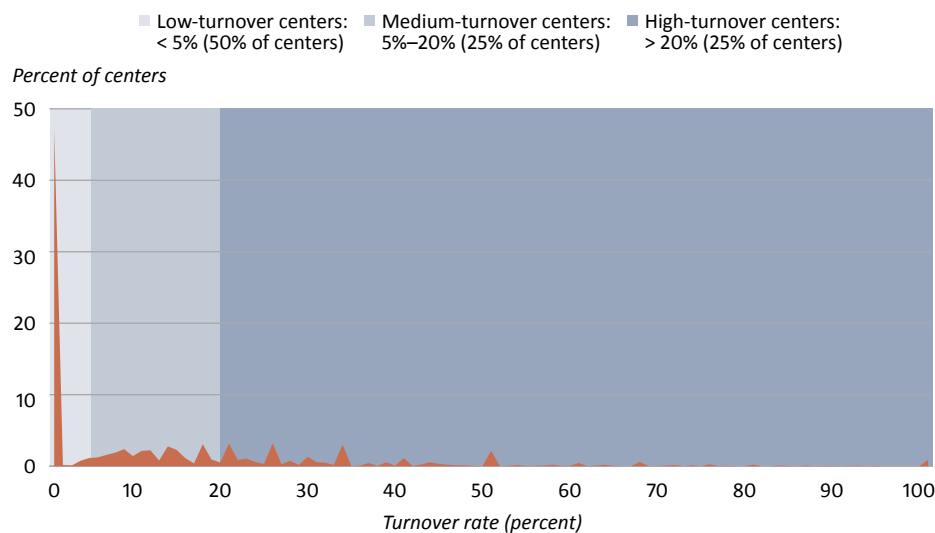
On average, 13 percent of educators left their early childhood education center in 2012

Turnover rates varied across centers. Nearly half of centers experienced no turnover among early childhood educators in 2012, while one-quarter of centers had turnover rates at or above 20 percent that year (figure 1; see also table B2 in appendix B).

Turnover rates varied by center characteristics

This section describes how turnover rates in 2012 varied by early childhood education center characteristics, including wage level, program type, center size, source of center funding, the age group served by the center, nonwage benefits offered, the region in which the center was located, and a variety of other traits. Describing how turnover varies more generally is the first step in understanding the factors associated with turnover rates among early childhood education centers.

Figure 1. Turnover rates among early childhood educators varied considerably across centers, with many centers experiencing no turnover and some experiencing rates of 20 percent or higher, 2012



Source: Authors' analysis of the 2012 National Survey of Early Care and Education (NSECE Project Team, 2017).

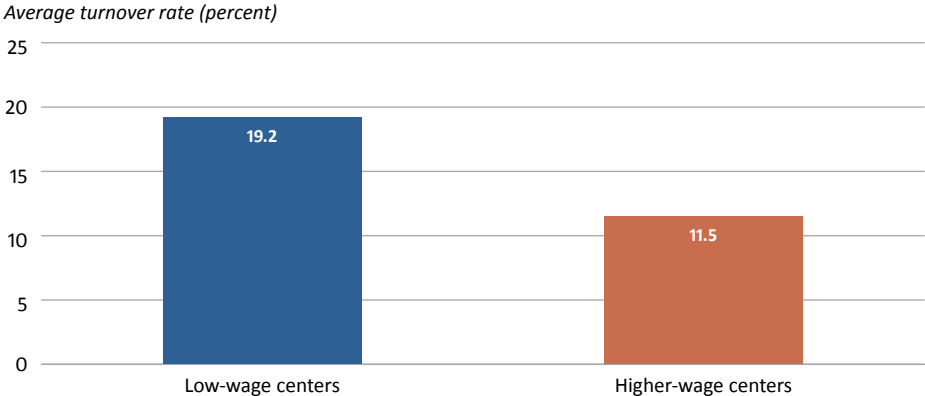
Because center characteristics are related to each other, it can be difficult to tell which are most strongly associated with center turnover rates. For example, different types of programs often serve different age groups. Centers serving children ages 0–5 account for less than 40 percent of Head Start centers but more than 80 percent of centers in the “other” program type category (see table B3 in appendix B). The correlations between program type, age group, wage, and other factors make causal patterns in the data difficult to discern. For example, are turnover rates lower in Head Start centers because of some attribute of the program type or because Head Start students are older than students in other program types, and student age group drives turnover rates?

The findings presented below first outline descriptive patterns in the distribution of center characteristics according to turnover category and then explore these patterns further with cross-tabulation and regression analyses. Although it is not possible to determine causality with these data, regression analyses enable the identification of characteristics that are directly related to a center’s likelihood of being in a higher turnover category.

Higher wages were associated with lower turnover rates. In line with the findings of prior research, descriptive and regression analyses conducted for this study consistently found that wages paid to early childhood educators were negatively associated with turnover rates. Centers in the bottom quartile of the wage distribution, which paid an average hourly wage of \$8.17, had an average turnover rate of 19 percent in 2012. Centers in the top three quartiles of the distribution, which paid an average hourly wage of \$16.73, had an average turnover rate of 12 percent (figure 2; see also table B4 in appendix B). This pattern held even after regression analyses controlled for other factors likely to be associated with wages and turnover rate, including program type and region (see table B13). Every \$1 increase in a center’s average hourly wage above the regional minimum wage was associated with a 5 percent decrease in the likelihood of the center being in a higher turnover category.

Centers serving children ages 3–5 paid more and had lower turnover rates than centers serving children ages 0–5. The age group served by an early childhood education center was associated with its wage level and educator turnover rate. Educators working in centers serving children ages 0–5 received an average hourly wage of \$12.60, which was more than \$6 below the \$18.87 average hourly wage paid to educators in centers serving children ages 3–5 (figure 3; see also table B5 in appendix B). Turnover rates were almost twice as high among centers serving children ages 0–5 (15 percent) as among centers serving children ages 3–5 (8 percent; see table B7). Centers serving only children ages 3–5 were concentrated in the low-turnover category (71 percent), whereas

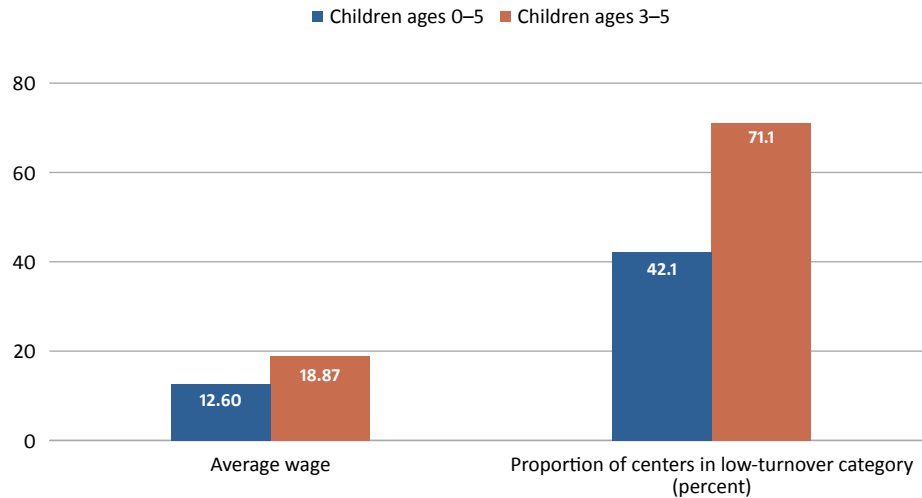
Figure 2. Turnover rates were higher in low-wage early childhood education centers than in higher-wage centers, 2012



Note: Low-wage centers were those in the bottom quartile of the hourly wage distribution, and higher-wage centers were those in the top three quartiles. The difference in turnover rate between the low-wage and higher-wage centers was statistically significant at $p < .05$. See table B4 in appendix B for the statistics from this cross-tabulation.

Source: Authors’ analysis of the 2012 National Survey of Early Care and Education (NSECE Project Team, 2017).

Figure 3. Turnover rates were higher and wages were lower in early childhood education centers serving children ages 0–5 than in centers serving children ages 3–5, 2012



Note: Centers were classified into one of three categories based on turnover rate (low, medium or high). Centers in the low-turnover category had a turnover rate below 5 percent. The difference in the distribution of centers serving different age groups in the low turnover category and the difference in the average hourly wage paid to educators in centers serving different age groups are both statistically significant at $p < .001$. See tables B2 and B5 in appendix B for the statistics from this cross-tabulation.

Source: Authors' analysis of the 2012 National Survey of Early Care and Education (NSECE Project Team, 2017).

centers serving children ages 0–5 were underrepresented; 42 percent were in the low-turnover category (see table B2). In regression models that controlled for both wage and age group served, the relationship between age group served and the likelihood of being in a higher turnover category was statistically significant, suggesting that age group differences in turnover rates cannot be fully explained by differences in wages (see table B12). This finding is consistent with prior research finding that early childhood education providers serving infants and toddlers have higher rates of turnover than those serving older children (Whitebook et al., 2018).

Although wages were associated with turnover rates, nonwage benefits and paid time off for professional development generally were not. Descriptive patterns reveal that educator turnover rates were lower, on average, in early childhood education centers offering nonwage benefits, such as health insurance and retirement benefits, than in centers that did not offer such benefits (see table B8 in appendix B). However, after regression analyses controlled for other center-level factors, the differences were not significant: offering nonwage benefits was not associated with a center's likelihood of being in a higher turnover category.

The relationships between offering nonwage benefits and turnover rate varied by center characteristics. Although offering nonwage benefits had no significant relationship to center turnover rates overall, offering nonwage benefits was associated with the likelihood of being in a higher turnover category in certain subgroups of centers (see table B14 in appendix B). The relationship varied by center wage level, size, and program type. The relationship between benefits and educator turnover category remained nonsignificant in private-pay centers serving children ages 0–5.

In low-wage centers, offering nonwage benefits was associated with an 80 percent increase in the likelihood of being in a higher turnover category (see table B14 in appendix B). The direction of the relationship is counter-intuitive, but it does not necessarily imply that offering benefits increases centers' turnover rates. Underlying factors may drive both turnover rate and access to benefits in low-wage centers. For instance, it is possible that centers experiencing higher turnover offer benefits as a nonwage incentive to retain workers. Alternatively, it may be that in low-wage centers, offering benefits comes at too high a monetary cost if educators would otherwise

qualify for Medicaid, leading them to seek higher-paying jobs that do not offer benefits. Before the Affordable Care Act of 2010, which relaxed eligibility requirements for Medicaid, 15 percent of childcare workers’ families were enrolled in Medicaid and 19 percent of their children were enrolled in Medicaid’s Children’s Health Insurance Program (Whitebook et al., 2014). Educators in low-wage centers that offer benefits might have differed in some unobserved way from those in low-wage centers that do not offer benefits that would lead those educators to have more labor market power to find other positions.

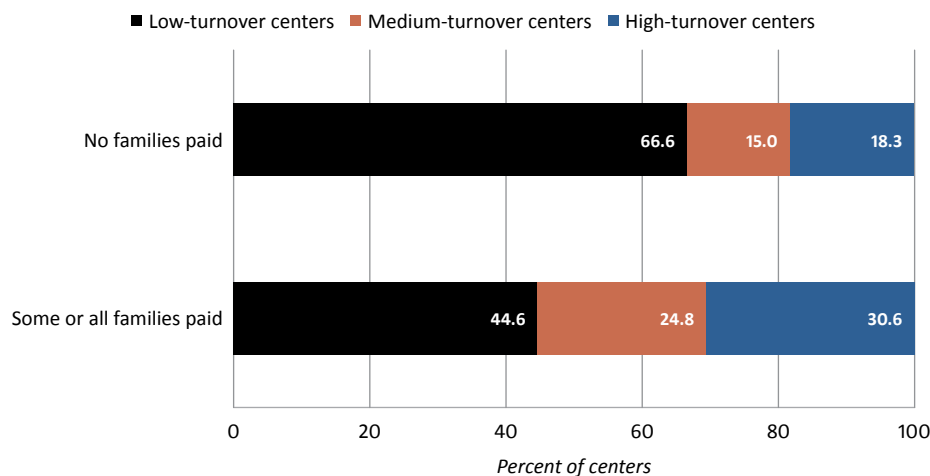
A comparison of the relationship between benefits and turnover category in small and larger centers yields similar results. Among small centers, offering no benefits is associated with a 42 percent reduction in the likelihood of being in a higher turnover category (see table B14 in appendix B).

The relationship between offering nonwage benefits and turnover category also varied by program type. Although for most program types, offering benefits was not associated with any change in turnover category, regression results indicate that for “other” program types—a group comprising private, parochial, and other nonpublic early childhood education centers—offering nonwage benefits was associated with a more than 600 percent increase in the odds of being in a higher turnover category (see table B14 in appendix B).

Other supports, including paid time off for professional development and center-level quality rating and improvement systems, were not associated with centers’ turnover rates. More than two-thirds of centers provided educators with paid time off to pursue professional development opportunities. Neither descriptive nor regression analyses found any clear relationship between paid time off for professional development and center-level turnover category (see tables B1, B8, and B13 in appendix B).

Turnover rates were higher in private-pay centers. As research has continued to highlight the importance of early childhood education for children’s development, an increasing number of jurisdictions have begun to provide free preschool options to residents. In 2018, 44 states and the District of Columbia offered a state-funded preschool program (Friedman-Krauss et al., 2019). In the NSECE, educator turnover rates were lower in these free state-funded centers than in centers where some or all families paid for care (see table B7 in appendix B). About 67 percent of free centers fell in the low-turnover category compared with 45 percent of centers where some or all families paid (figure 4).

Figure 4. A greater proportion of centers where no families paid for early childhood education had low-turnover rates than of centers where some or all families paid, 2012



Note: The differences in the proportions of low, medium, and high turnover rates between free centers and centers at which some or all families paid are statistically significant at $p < .001$. See table B6 in appendix B for the statistics from this cross-tabulation.

Source: Authors’ analysis of the 2012 National Survey of Early Care and Education (NSECE Project Team, 2017).

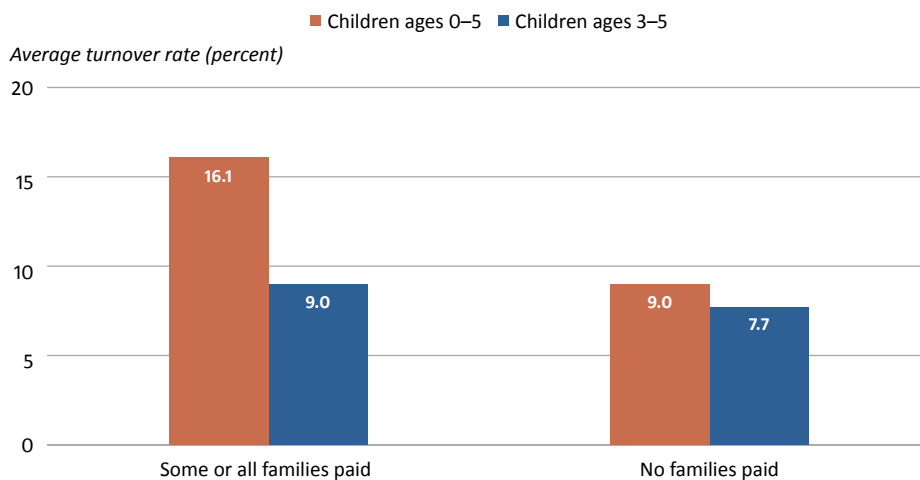
However, regression analyses that controlled for wages and other factors associated with educator turnover rates found no significant relationship between who paid and the likelihood of being in a higher turnover category, suggesting that differences in turnover rates between private-pay and subsidized centers is driven by other factors.

Private-pay centers serving children ages 0–5 had higher turnover rates than any other type of center. It is possible that the results of the relationship between who paid for services at early childcare education centers and turnover rates reflect the disproportionate availability of free preschool programs across the country and lower underlying turnover rates among educators serving children ages 3–5. However, in a comparison of average turnover rates by age group and payer, private-pay centers serving children ages 0–5 stood out from other categories. Whereas average turnover rates were at or below 9 percent among all centers serving children ages 3–5 and centers serving children ages 0–5 where no families paid, the turnover rate averaged 16 percent among private-pay centers serving children ages 0–5 (figure 5; see also table B7 in appendix B).

Private-pay centers serving children ages 0–5, which make up 64 percent of the analytic sample, differed from other centers in several ways. Consistent with the pattern that centers with higher turnover rates paid lower wages, private-pay centers serving children ages 0–5 paid a lower hourly wage (\$11.60) than did other types of centers (\$18.90; figure 6; see also table B9 in appendix B). They also were much less likely to offer nonwage benefits. About 52 percent of private-pay centers serving children ages 0–5 offered nonwage benefits compared with 87 percent of other types of centers. Private-pay centers for children ages 0–5 also tended to have smaller staff sizes, with a larger percentage of White students and a smaller percentage of Hispanic students than other types of centers. Regionally, the distribution of private-pay centers serving children ages 0–5 also varied. These centers made up 67 percent of early childhood education centers in the northeast and 62 percent of centers in the south but only about 53 percent of centers in the midwest and west (see table B10). When multivariate regressions controlled for wages, nonwage benefits, and other differences between private-pay centers serving children ages 0–5 and all other centers, private-pay centers serving children ages 0–5 had 80 percent higher likelihood of being in a higher turnover category than did other centers (see table B13).

Educators’ likelihood of employment in low-wage centers, centers not offering nonwage benefits, and high-turnover centers varied by educators’ race/ethnicity and education. Understanding patterns in educator turnover rates is

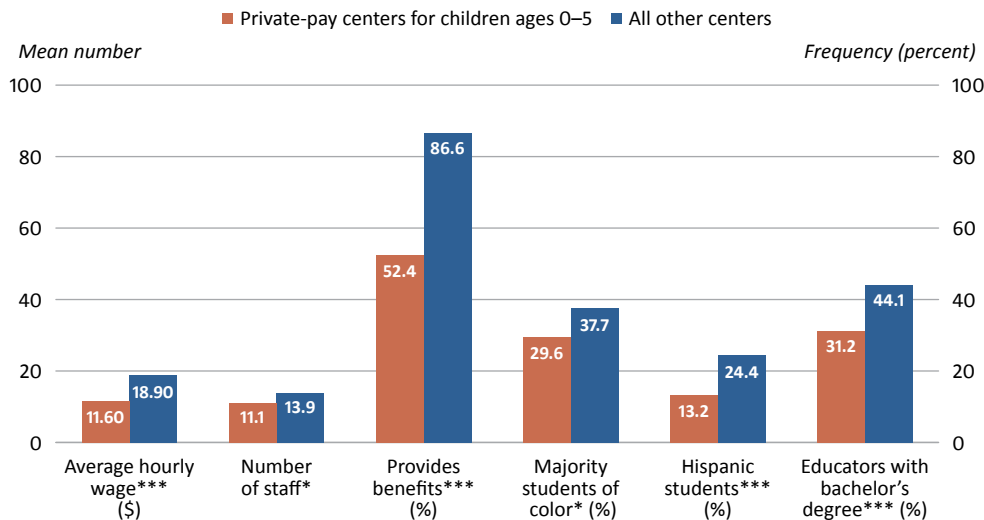
Figure 5. Early childhood education center–level turnover rates were highest in private-pay centers serving children ages 0–5, 2012



Note: The differences in the average turnover rate between private-pay centers serving children ages 0–5 and the other three center types in the figure were statistically significant at $p < .05$

Source: Authors’ analysis of the 2012 National Survey of Early Care and Education (NSECE Project Team, 2017).

Figure 6. The characteristics of private-pay early childhood education centers serving children ages 0–5 differed from those of other centers in the sample, 2012



* Significant at $p < .05$; *** significant at $p < .001$.

Note: Frequencies and means are survey weighted. See table B9 in appendix B for the statistics from this cross-tabulation.

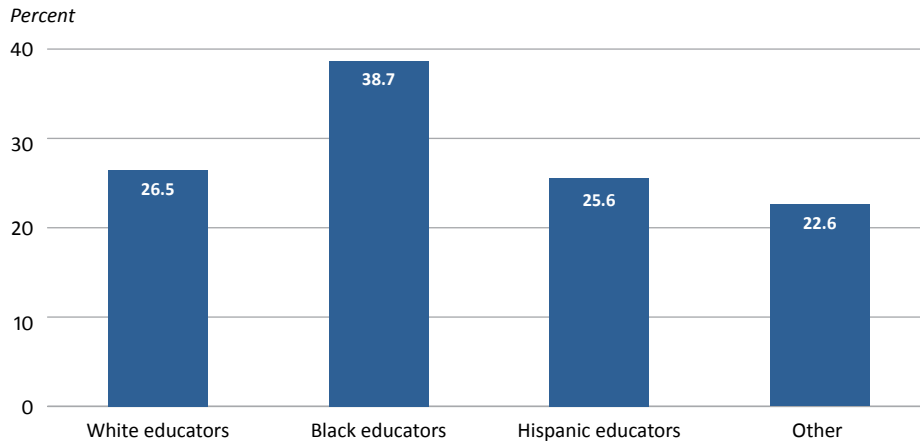
Source: Authors' analysis of the 2012 National Survey of Early Care and Education (NSECE Project Team, 2017).

challenging because educators' traits may influence their decisions to stay in or leave a job as much as the characteristics of the centers in which they work. Reflecting the variation in certification and employment eligibility requirements by state and even by program type, the early childhood education workforce is highly diverse, ranging from career professionals to young adults seeking interim employment (Saluja et al., 2002; Whitebook 2008; Whitebook et al., 2018). This diverse workforce was not distributed randomly across centers, however; educators' personal traits, including race/ethnicity, educational attainment, and experience, were associated with the types of centers in which they worked. Thus, educators have unequal exposure to the working conditions that could precipitate turnover and unequal access to the wages and center characteristics that are associated with retention.

Black educators were more likely to be employed in low-wage centers and Hispanic educators were less likely to be employed in low-wage centers. Of Black educators who responded to the workforce survey, 39 percent were employed in low-wage centers (figure 7; see also table B11 in appendix B). Because low-wage centers represent the bottom quartile of the wage distribution, just 25 percent of Black educators would be in low-wage settings if the racial distribution were even. The proportion working in low-wage centers is closer to 25 percent for respondents of other racial/ethnic groups. This suggests that there might be racial/ethnic inequity in educators' access to higher wages. Further research is needed to understand whether this pattern is independent of patterns in educational attainment by race/ethnicity. However, there is no variation in the racial/ethnic distribution of respondents across turnover categories: Black educators were no more likely than White educators to be employed in a high-turnover center (see table B12).

Early childhood educators with lower educational attainment were more likely to be employed in low-wage and high-turnover centers than educators with higher educational attainment. About 51 percent of educators with a high school degree were employed in low-wage centers compared with 9 percent of educators with a bachelor's degree (figure 8; see also table B11 in appendix B). Educators with a high school degree were also clustered in high-turnover centers: 33 percent of high school-educated workers were in high-turnover centers compared with 25 percent of educators with a bachelor's degree (see table B12). However, the relationship between educational attainment and turnover might be spurious. For example, educators with lower educational attainment might drive up centers' turnover rates as they pursue higher learning.

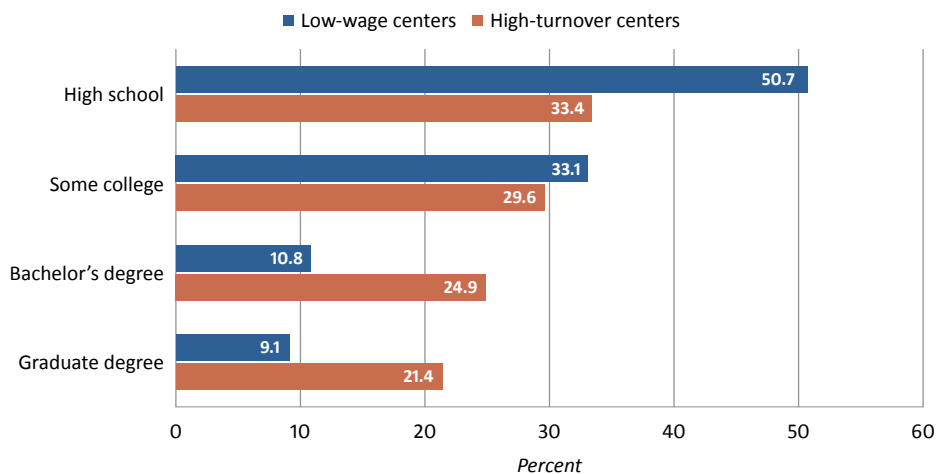
Figure 7. Black educators were more likely than educators of other races/ethnicities to work in low-wage early childhood education centers, 2012



Note: $n = 4,782$. Differences in the distribution of educators by race/ethnicity in low-wage centers are statistically significant at $p < .001$. Because one employee was surveyed in each early childhood education center and response rates were lower among educators than directors, this figure does not represent all 7,773 centers in the analytic sample. See table B11 in appendix B for the statistics from this cross-tabulation.

Source: Authors' analysis of the 2012 National Survey of Early Care and Education (NSECE Project Team, 2017).

Figure 8. Early childhood educators with lower educational attainment were more likely to be employed in low-wage and high-turnover centers than educators with higher educational attainment, 2012



Note: Because one employee was surveyed in each early childhood education center and response rates were lower among educators than directors, this figure does not represent all 7,773 centers in the analytic sample; See tables B11 and B12 in appendix B for the statistics from this cross-tabulation. The uneven distribution of educators with different levels of education across low-wage and high turnover centers is statistically significant at $p < .05$.

Source: Authors' analysis of the 2012 National Survey of Early Care and Education (NSECE Project Team, 2017).

Early childhood educators with lower educational attainment and less experience were clustered in private-pay centers serving children ages 0–5. More than 80 percent of respondents with a high school education and 72 percent of those with some college worked in private-pay centers serving children ages 0–5 compared with 66 percent of educators with a bachelor's degree and 57 percent of educators with a graduate degree (see table B10 in appendix B). Relatedly, 78 percent of educators with less than six years' experience were employed in private-pay centers serving children ages 0–5 compared with 65–66 percent of educators with at least 11 years' experience. Finally, Hispanic educators were underrepresented in private-pay centers serving children ages 0–5 relative to educators of other racial/ethnic groups. About 61 percent of Hispanic respondents reported working in

private-pay centers serving children ages 0–5 compared with 71 percent of White respondents and 74 percent of Black respondents.

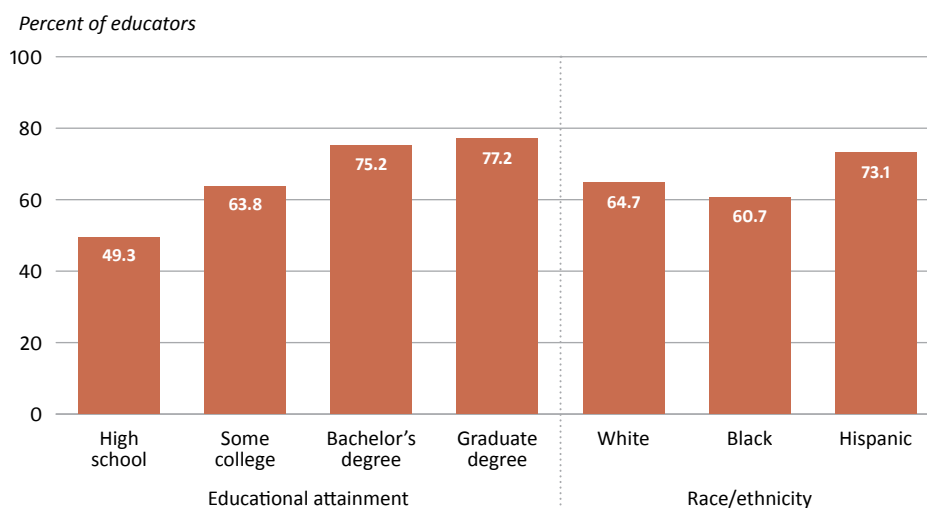
Early childhood educators with higher educational attainment and more experience accessed nonwage benefits at higher rates than educators with lower educational attainment and less experience. Because of stricter requirements related to public funding streams, school-sponsored centers employed educators with more education and experience. School-sponsored centers, Head Start centers, and public prekindergarten centers also paid higher wages and offered nonwage benefits at higher rates than other program types (see tables B5 and B8 in appendix B). Centers that offered nonwage benefits also employed educators with higher educational attainment: 75 percent of respondents with a bachelor’s degree worked in centers that offered nonwage benefits compared with 49.3 percent of respondents with only a high school education (figure 9; see also table B11 in appendix B).

Access to nonwage benefits was also stratified by race/ethnicity. Black educators were less likely than educators of other races/ethnicities to work in centers that offered nonwage benefits: 61 percent of Black respondents worked in centers that offered nonwage benefits compared with 73 percent of Hispanic respondents (see figure 9 and table B11 in appendix B). Understanding the co-occurrence of individual- and center-level variation is critical for identifying socioeconomic segmentation of the labor market and access to higher wages and nonwage benefits.

Limitations

The NSECE is the most comprehensive nationally representative survey of the early childhood education system and the early childhood education workforce in the country. However, the structure, quality, and age of the data pose some limitations. First, the structure of the data precludes identifying causal relationships between center characteristics and turnover. Because this survey was conducted at only one timepoint and did not follow the same individuals over time, as they experienced changes in employment status, wages, nonwage benefits, and

Figure 9. Educators with lower educational attainment and Black educators were less likely than educators with higher educational attainment and educators of another race/ethnicity to work in early childhood education centers that offered nonwage benefits, 2012



Note: The uneven distribution of educators by level of educational attainment and race/ethnicity across early childhood education centers offering nonwage benefits is statistically significant at $p < .05$. See table B11 in appendix B for the statistics from this cross-tabulation.

Source: Authors’ analysis of the 2012 National Survey of Early Care and Education (NSECE Project Team, 2017).

other working conditions, it is not possible to know the direction of relationships between these factors and center turnover rates. The study is descriptive rather than causal and is not designed to demonstrate which supports and characteristics of early childhood education centers are the cause of any variation in educator turnover rates.

Second, the nontrivial amount of item nonresponse, particularly pertaining to the average hourly wage, could have biased the results of these analyses. To mitigate this potential bias, the study team employed multiple imputation using advanced statistical methods (see appendix B). Although the imputed values for the missing responses might not perfectly match the observed values for these centers, multiple imputation reduces bias in setting missing data compared with complete case analysis (Allison, 2001). Item nonresponse on critical questions related to nonwage benefits was relatively low, with fewer than 1.6 percent of centers missing data on access to nonwage benefits.

Third, survey nonresponse was high in the workforce survey and therefore not every center that was represented in analyses of center-level characteristics was also represented in analyses that consider the distribution of educators across center types. More than one-third of centers were unrepresented in the educator sample as a result of nonresponse for those centers. Although weighting corrects for bias in the sample created by nonresponse, analyses examining the distribution of staff characteristics across center types should be interpreted with caution.

Fourth, the measures used in the NSECE could obscure nuance and detail that might be important for understanding turnover patterns. Key variables in this study, including nonwage benefits, program type, and even turnover rate might be affected by measurement issues. For instance, the characteristics of nonwage benefits can vary dramatically; a binary indicator of whether a center provides nonwage benefits indicates very little about the cost and the quality of those benefits. Another potential loss of important nuance arises because of the aggregation of multiple center types into the “other” program types category. Centers in that category range from large private centers run by corporations in affluent communities to small rural preschools. In addition, center turnover rates could be measured more precisely. Current measures of turnover include staff working with all children younger than 13 and are not limited to those serving children ages 0–5. However, sensitivity analyses conducted for the 60 percent of centers that did not report working with school-age children replicated the main findings for wages and nonwage benefits, with some variation across region and racial composition (see table B15 in appendix B).

Fifth, the study is limited by the age of the data. The most recent NSECE data available at the time of this writing are from 2012, so the dataset does not reflect any changes in policies or wages since then. While wages for the early childhood education workforce were stagnant in the few years following 2012, recent state-level initiatives have contributed to a gradual if uneven increase in wages (Thomason et al., 2018). Efforts to replicate the results of this study with the 2019 NSECE data might reveal interesting changes in the relationship between center characteristics and educator turnover that could inform policy.

Finally, there are limitations from the way in which the survey was sampled that preclude some interesting follow-up analyses on workforce demographics. Because only one employee was surveyed from each center, the study could not report on the overall demographic composition of the workforce within particular early childhood center types. More comprehensive information, beyond what is available through the current dataset, would be necessary to explore these patterns.

Implications

This study findings suggest that educator wage is the strongest predictor of center-level turnover across early childhood education centers. This finding could be used to advance policy, programmatic, or other creative efforts to raise early childhood educator wages. A recent study on early childhood education educators’ compensation

in the District of Columbia region uncovered wage patterns that are similar to the national patterns identified in this report (Isaacs et al., 2018). The study explored direct and indirect ways to increase educators' pay, including linking pay to publicly funded state-approved career ladders, passing pay-parity legislation for public preschool programs, and implementing one-time or periodic stipends and refundable tax credits.

However, these approaches could widen wage gaps within the educator workforce by privileging educators who already have higher educational attainment. Indirect approaches, such as scholarships, could raise educators' wages by providing affordable access to higher education and additional credentials. For example, the Early Childhood Teacher Education Assistance for College and Higher Education grant program, administered by the U.S. Department of Education, provides grants to states to fund educational scholarships for early childhood education professionals that cover the cost of college tuition, books, travel, and release time. Participants and employers are required to pay part of the scholarship cost, but participants receive a bonus on completion.

Given more recent increases in the minimum wage at the state level (The Economic Policy Institute, 2020), future research could examine whether the results of the current study using 2012 data hold for the 2019 administration of the NSECE, which is scheduled for release in 2021. In 2012 the minimum wage in most states was close to the federal minimum wage of \$7.25 an hour. Many states have since increased their minimum wage to more than \$10 an hour. There is evidence to suggest that higher universal minimum wages would also likely benefit the early childhood education workforce (Isaacs et al., 2018). While the data and analyses presented in this report do not support causal claims, studies using longitudinal data related to policy change might advance the understanding of the relationship between wages and turnover rates in early childhood education.

Research could examine why private-pay centers serving children ages 0–5 have much higher turnover rates than other centers. These centers have turnover rates that are higher than the average for all other centers even after differences in wages are controlled for. This fact, together with the finding that nonwage benefits are unrelated to turnover rates in these centers, suggests that reversing high turnover in private-pay centers serving children from infancy through preschool will require alternative and creative approaches tailored to their unique context. More research is needed on the characteristics of educators employed in the different types of centers and on employment conditions within the centers. Such studies could reveal the factors that contribute to the lower turnover in publicly funded centers compared with private-pay centers and help identify interventions that might be effective in different contexts. For example, if turnover is highest in private-pay centers serving children ages 0–5 because these centers rely on younger, less experienced staff, career lattice and leadership development programs might encourage the retention of young people hoping to build a career in early childhood education.

Finally, practitioners and policymakers could explore ways to reduce stratification in working conditions across the early childhood education workforce. Racial/ethnic employment patterns might reflect racialized educational disparities, bias in the hiring processes, or uneven retention of educators from different racial/ethnic groups stemming from a variety of factors. The clustering of Black educators and educators with lower educational attainment in low-wage centers where turnover rates are highest suggests that the problem of turnover might be especially pronounced among marginalized individuals. Pipeline programs that improve access to higher education for educators with lower educational attainment could give them more power in the labor market. Research on the early childhood education workforce has revealed that Black educators are relegated to low-wage work with very young children (Whitebook et al., 2018). A 2017 report offers a range of policy recommendations for addressing racial/ethnic disparities in the early childhood education workforce, including improving the quality, wages, and career ladder of early childhood education jobs overall; providing professional development, curricula, and training in multiple languages; and addressing the racially/ethnically disparate use of suspension and expulsion (Johnson-Staub, 2017). These interventions might expand equality of opportunity and contribute to building a culturally diverse and well-trained workforce.

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