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An ecological perspective on early educator well-being at the start of the COVID-19 pandemic

Emily C. Hanno*, Madelyn Gardner, Stephanie M. Jones, Nonie K. Lesaux

Graduate School of Education, Harvard University, 14 Appian Way, Cambridge, MA

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Early educator well-being is increasingly understood as a critical ingredient of high-quality early education and care. The COVID-19 pandemic has threatened educator well-being by exacerbating existing stressors and introducing novel stressors to all aspects of early educators’ lives, and early educators have had differential access to resources to cope with these new circumstances. Using survey data collected between April and June 2020 with a sample of 666 early educators in community-based center, family child care, Head Start, and public school prekindergarten programs across Massachusetts, we document the pandemic’s initial influence on educators’ sense of well-being. Adopting an ecological perspective, we consider educator-, program-, and community-level factors that may be associated with reported changes in well-being. Most educators indicated that their mental and financial well-being had been affected. These changes were not systematically associated with most contextual factors, although there was clear evidence of variability in reported impacts by provider type. These findings underscore the need to support educator well-being, as well as to create policy solutions that meet the heterogeneous needs of this essential workforce.

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1. Introduction

As COVID-19 began to spread rapidly in the United States in early Spring 2020, many early education and care programs across the nation were shuttered. The consequences of these program closures were widespread. Countless news stories documented the stress faced by families left to care for young children at home while balancing other responsibilities (e.g., Dastagir, 2020; Grose, 2020; Pinsker, 2020). Research further illustrates the pandemic’s adverse effects on the well-being, or physical, emotional, and material state, of parents and children alike (Gassman-Pines et al., 2020; Hanno, Cuartas, et al., 2021; Hanno, Wiklund Hayhurst, et al., 2021; Patrick et al., 2020). Beyond their impacts on children and families, program closures also placed severe financial strain on many early education and care programs, particularly those relying on payments from families to survive (National Association for the Education of Young Children, 2020).

Though we have evidence of widespread consequences for families, children, and programs, we know much less about how program shutdowns, and the COVID-19 pandemic more broadly, have affected early educators. Adverse impacts on educators could lead to longer-term health and well-being problems (Bellingrath et al., 2009; Cohen et al., 2007; Katz et al., 2016). Moreover, poor educator well-being can affect the quality of early education and care settings, as well as children's learning and behavior (Jeon et al., 2014; Sandilos et al., 2015; Whitaker et al., 2015). Understanding how the pandemic has influenced educator well-being is critical to generating a strategy to rebuild early education and care.

In this paper, we draw on decades of research on educator stress and well-being to propose an ecological framework for understanding the COVID-19 pandemic’s multifaceted and heterogeneous consequences for early educators. This framework recognizes that educators inhabit diverse contexts that shape their exposure to and protection from the pandemic and its aftermath. Starting from this ecological perspective, we use cross-sectional survey data collected at the start of the pandemic in Spring 2020 from 666 early educators who were part of an existing statewide study of early education and care in Massachusetts to accomplish two aims. First, we document educators’ self-reported pandemic-related stress and impacts on their mental, physical, and financial well-being, examining variation in these outcomes at the educator, program, and community levels. Second, we assess the educator-, program-, and community-level factors associated with these aspects of educator well-being.

* Corresponding author.
E-mail address: ehanno@g.harvard.edu (E.C. Hanno).

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1.1. Early Educator Well-Being

Research has shown that early educators’ well-being affects their ability to provide high-quality early education and care, and thus support children’s development (Hanno, McCoy, et al., 2021; Jennings & Greenberg, 2009; Jeon et al., 2014, 2018; Johnson et al., 2020, 2021; Sandilos et al., 2015). Although these studies have measured educator well-being in many ways, it is most often conceptualized as the absence of stress or burnout. Whereas stress involves a heightened emotional and physiological response, burnout involves feelings of emotional exhaustion and disengagement caused by severe, persistent stress (Hall-Kenyon et al., 2014; Maslach, 2006). Both can undermine well-being and hamper educators’ ability to meaningfully engage with children, increasing the likelihood that educators will respond abusively to children and other adults (Jones et al., 2013). This can in turn exacerbate behaviors that may then further reduce educator well-being, igniting a so-called “burnout cascade” (Jennings & Greenberg, 2009).

Educators experiencing burnout or high levels of stress often struggle to provide children with the emotionally responsive and cognitively stimulating adult-child interactions that are foundational to their development (Li–Grimm et al., 2010; Whitaker et al., 2015). Relatedly, when educators experience high stress, burnout, or mental health symptoms, children under their care tend to exhibit more behavioral challenges and poorer skill development than other children (Neuenschwander et al., 2017; Pakarinen et al., 2010; Zinser et al., 2013). High stress also increases the likelihood that educators will quit their jobs, creating unstable learning conditions for children, which are in turn associated with lower rates of learning (Grant et al., 2019; Tran & Winsler, 2011).

The way educator well-being shapes outcomes for children and adults is particularly concerning given mounting evidence that many early educators face numerous occupation-related stressors. While individual experiences and conditions vary widely (as described in the next section), the work of early educators tends to be physically and emotionally taxing and comes with low financial rewards and limited supports (Whitebook et al., 2014). In addition to creating safe, nurturing environments, early educators are increasingly held accountable for preparing children for kindergarten by supporting their development across a range of academic and non-academic domains (Johnson et al., 2020). Despite these complex job demands early educators often have few professional resources to guide their work. Less than half of early educators receive financial assistance or release time for professional development (Ullrich et al., 2016). Early educators typically receive little compensation, some earn poverty-level wages, and many lack benefits like paid sick leave and health insurance (Ullrich et al., 2016; Whitebook et al., 2014). In 2019, preschool teachers in the United States made on average $30,520 annually. Elementary school teachers earned almost twice as much, with an average annual salary of $59,670 (U.S. Bureau of Labor Statistics, 2019).

The grating wear and tear of the profession has psychological and physiological consequences for early educators. High stress without buffering supports over a prolonged period can “get under the skin,” affecting both mental health (e.g., depression and anxiety) and physical health (e.g., cardiovascular disease and immune functioning) (Cohen et al., 2007; Lupien et al., 2009; National Scientific Council on the Developing Child, 2014). It should come as no surprise, then, that in addition to experiencing generally high levels of stress, many early educators face mental and physical ailments (Jeon et al., 2018; Roberts et al., 2019; Whitaker et al., 2013). For example, compared to a national sample, Head Start staff in Pennsylvania were more likely to have diagnosed depression, report frequent unhealthy days, and suffer from three or more health conditions (Whitaker et al., 2013). In sum, research suggests that early educator well-being involves an array of interrelated elements, ranging from the personal to the professional, and from the physical to psychological (Hall-Kenyon et al., 2014). Thus, we adopt a multidimensional perspective on early educator well-being, focusing not only on stress itself but also its financial, mental, and physical consequences.

1.2. Ecological Influences on Early Educator Well-Being

Bioecological theory offers a conceptual foundation for understanding how early educators’ multiple contexts (e.g., work, home, and community) simultaneously influence their well-being and account for variation in well-being across settings (Bronfenbrenner & Morris, 2006; Roberts et al., 2019). Humans exist within and interact with a variety of contexts, ranging from the proximal home and workplace contexts to more distal ecologies like a state’s policy environment. In these interrelated contexts, educators encounter supports (e.g., colleagues and family members) that nurture them, but also stressors and risk factors (e.g., job demands and economic scarcity) that may harm their well-being. To identify strategies and interventions that promote well-being and offset or minimize stress and burnout, we must consider factors across the range of contexts in which educators live and work.

Existing research on educator well-being most frequently emphasizes the role that workplace conditions play in stress and burnout among the early education and care workforce. The job demands resources model justifies this focus, suggesting that high job demands require sustained exertion and attention that can wear on workers, especially in the absence of supports (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). The model stresses the careful balance between demands and resources; when overtaxed and under-supported, early educators are likely to experience stress and emotional exhaustion. Consistent with this framework, several studies have shown that job stressors are positively associated—and supports are inversely associated—with higher rates of work-related stress and burnout among early educators (Jeon et al., 2018; Madill et al., 2018; Schack et al., 2020).

Though many early educators face serious work-related challenges, these conditions are not uniform. In most states, including Massachusetts, the early education and care sector includes a range of settings, such as community-based centers, family child care programs, Head Start, and public school prekindergarten (Jones et al., 2020). Early educators in these different provider types often face distinct work-related stressors and have more or less access to supports. For example, early educators in school-based programs tend to earn more than twice as much per hour as do self-employed home care providers (Whitebook et al., 2018). Yet research on early educator well-being does not typically consider the full diversity of early educator work contexts. Most studies tend to focus on relatively homogenous samples of educators (e.g., those in one provider type and/or in one city). Consequently, while provider type may be a particularly salient factor in explaining work conditions and therefore variation in educator well-being, we know little about how well-being differs across provider types.

Moreover, existing work tends to focus on inside-of-work factors and largely ignores outside-of-work factors that are also likely to influence educator well-being. For example, stressful circumstances at home, such as household chaos, may wear on educators’ emotional well-being, much as chaos in the work environment does (Jeon et al., 2018; Johnson et al., 2021). Factors in educators’ broader communities may similarly affect their well-being. Educators working in under-resourced contexts may have to help the children and families they care for navigate stressors common to low-income communities in the United States, such as food and housing insecurity, unemployment or under-employment, crime, systemic racism, and environmental stressors.
threats (e.g., lack of access to clean drinking water or exposure to environmental toxins in the air) (Evans, 2004). Further, many of these community factors are also known to directly influence children’s behavior and development (Blair & Raver, 2012; Johnson & Markowitz, 2018; McCoy et al., 2015), which may place demands on early educators to provide additional instructional, behavioral, and emotional supports to children (Farewell et al., 2021).

1.3. An Ecological Approach to Early Educator Well-Being During the COVID-19 Pandemic

Given how the COVID-19 pandemic has fundamentally altered all dimensions of everyday life, an ecological framework is well-suited to help us understand its impacts on early educator well-being. In early 2020, the COVID-19 disease began to spread rapidly through the United States, with particularly high levels of community transmission in the Northeast. In Massachusetts, nearly 4,000 of the state’s residents had died of the disease by the end of April (Massachusetts Department of Public Health, 2020). Before issuing a statewide stay-at-home advisory on March 24, 2020, Governor Charlie Baker issued orders to close all public and private elementary and secondary schools beginning March 17, 2020, and to close all child care programs beginning March 23, 2020. A small number of programs—designated Exempt Emergency Child Care Programs—were permitted to remain open to serve approximately 2,500 children of essential workers (Office of Governor Charlie Baker and Lt. Governor Karyn Polito, 2020). Our data collection occurred during this period in Spring 2020, when most programs were closed and public health measures had shifted life in the state largely to the home.

Although the pandemic and the associated public health measures affected daily life for all, their disproportionate effects on the well-being of certain subpopulations have become increasingly clear. The pandemic has had particularly devastating consequences for subpopulations that are over-represented among early educators: low-income individuals, people of color, and women (Macías Gil et al., 2020; Millett et al., 2020; Stevenson, 2020). In terms of physical well-being, COVID-19 infection and death rates have been higher in low-income communities and communities of color, as compared to higher-income and predominantly White communities (Adhikari et al., 2020; Centers for Disease Control and Prevention, 2020). These communities have also faced threats to financial well-being, including relatively high unemployment rates throughout the pandemic (Stevenson, 2020). Women’s labor market participation has also been significantly affected: women were more likely than men to exit the workforce, become unemployed, and change work hours between February and April 2020 (Landivar et al., 2020). This may be attributable in part to the scramble faced by working parents with children who were largely at home throughout the day (Adams & Todd, 2020). Though we still do not know the full extent of the pandemic’s mental health impacts, it is hypothesized that groups facing grief and financial insecurity in the pandemic’s wake will also feel the greatest psychological consequences (Purtle, 2020). In general, the pandemic’s differential effects are largely understood to be the product of structural factors shaping individuals’ ability to practice social distancing, access health care, maintain employment, and work from home, among other factors (Jay et al., 2020).

In the same way that the pandemic’s consequences have not been equal across the general population, it is likely the pandemic has had variable consequences for the well-being of early educators. Educators were not only situated in communities shaped by broader social and economic inequities, but also confronted unique pandemic-related stressors associated with their jobs. Surveys collected in Spring 2020 with early educators across a number of states painted a picture of widespread increases in occupational and financial stress for many in the field (Bassok et al., 2020; Hanno et al., 2020; Markowitz et al., 2020; Parr et al., 2020). Among early educators surveyed in Louisiana between April and May 2020, over half reported that their weekly earnings had decreased, and nearly all expressed doubts about the safety of their work during the pandemic (e.g., concerns about parents sending children to site while ill; Markowitz et al., 2020). These surveys also began to highlight the pandemic’s differential impacts on educator well-being. In Virginia, educators working in child care centers were far more likely to report pandemic-related financial struggles than those in school-based settings (Bassok et al., 2020).

Building on this work, we argue that educator well-being during the pandemic is likely the product of numerous stressors and supports that exist at different levels of educators’ ecologies. Fig. 1 presents an organizing model drawing on biocultural theories of development (Bronfenbrenner & Morris, 2006). It illustrates educator well-being as multifaceted and potentially shaped by interrelated educator-, program-, and community-level factors. Many factors may serve as stressors or supports for early educators at each of the 3 levels we consider. We focus here on a subset of factors likely to be salient in the context of the COVID-19 pandemic. These include both direct consequences of the current pandemic (e.g., having one’s income affected or working in a community with high COVID-19 incidence) and factors that may have affected the likelihood that educators experienced the pandemic’s effects (e.g., working in a program that relies on fees from families or receiving hygiene-related guidance or materials). The latter set of factors may have put educators at greater risk of being adversely affected by the pandemic (e.g., working in low socioeconomic status communities or communities with high levels of air pollution) or reduced their risk (e.g., receiving mental health supports).

We anticipate that each of these factors contributed to educators’ general sense of well-being, but that certain factors were more relevant than others for specific aspects of well-being. For example, having one’s income affected was most likely linked to an educator’s financial well-being, whereas having mental health supports was most likely related to educators’ mental well-being. Consistent with prior work with this sample and others (Bassok et al., 2020; Hanno et al., 2020), we also anticipated provider type to be particularly salient during the pandemic, given variation across provider types in access to supportive resources. In addition to aforementioned factors that tend to differ systematically across
provider types (e.g., income stability or access to mental health supports), community-based centers and family child care programs also tended to have fewer financial and material resources (e.g., remote learning technology) and less access to public offerings (e.g., free COVID testing) than either Head Start or public school prekindergarten programs (Bassok et al., 2020; McNERney & Jung, 2021).

By looking holistically at factors across provider types during the ongoing crisis, we may begin to identify the early educators who are carrying the heaviest burden as a result of the COVID-19 pandemic, as well as the types of supports that might promote resilience. Understanding the correlates of pandemic-related stress and the pandemic’s adverse impacts on multiple aspects of educator well-being can help develop targeted strategies and practices to support early education and care programs. It can also guide the careful allocation of limited resources to ensure that young children have access to early learning experiences led by educators ready to support their development.

1.4. Current Study

In this study, we use cross-sectional survey data collected in Spring 2020 from 666 early educators in group-based programs across Massachusetts to extend the conversation on educator well-being to the context of the COVID-19 pandemic. We first use descriptive statistics to document variation in early educators’ self-reported pandemic-related stress and impacts on their financial, mental, and physical well-being at the educator, program, and community levels. We then adopt an ecological perspective to examine the educator-, program-, and community-level factors associated with various dimensions of educator well-being. Specifically, we address two research questions:

(1) How much did educators’ perceptions of their stress and well-being at the start of the COVID-19 pandemic vary at the educator, program, and community levels? and

(2) Were ecological factors associated with educator stress and well-being?

In addition to the potential of this work to help relief and recovery efforts for the early education and care sector, it extends the existing research on educator well-being in three principal ways. First, whereas most research considers educators working in one provider type and location (e.g., Head Start programs in a specific city), we consider a diverse sample of educators in the full range of group-based early education and care programs (i.e., community-based centers, family child care, Head Start, and public school prekindergarten) across one state. Second, we adopt a multidimensional perspective on well-being during the COVID-19 pandemic to consider overall pandemic-related stress, as well as the pandemic’s impacts on financial, mental, and physical well-being. Third, we move beyond a focus solely on the occupation-related correlates of educator well-being to incorporate personal and community factors likely to also be associated with well-being. The COVID-19 pandemic has both exacerbated existing stressors and posed distinct threats to educator well-being that must be understood to support a healthy, stable workforce.

2. Methods

2.1. Sample and Procedures

Our analyses use data from an online survey collected in Massachusetts between April and June 2020, when the COVID-19 disease spread rapidly through the state. Educators in group-based early education and care settings completed a survey in which they were asked about their experiences of the pandemic, including their personal well-being, current personal and work responsibilities, working conditions, and demographic characteristics. During this time, most early education and care programs in the state were shuttered to in-person operations due to an emergency order by the Governor in March, with the exception of the very small number of Exempt Emergency Child Care Programs (Office of Governor Charlie Baker and Lt. Governor Karyn Polito, 2020). Many early education and care programs that ceased in-person operations offered remote instruction and supports to enrolled children and families (Hanno et al., 2020). Non-emergency programs remained closed through at least the end of June 2020.

Educators were invited to participate in our survey because they or someone else in their setting had previously participated in the Early Learning Study at Harvard (ELS@H), a longitudinal, population-level study of young children and their early education and care settings in Massachusetts (Jones et al., 2020). At the end of March 2020, we attempted to contact 925 early education and care programs that enrolled a child participating in the first two years of ELS@H (2017-2018 and 2018-2019). For each of these programs, we sent a program-level contact an email asking them to circulate the survey to all administrators (e.g., center directors) and lead teachers of 3- and 4-year-olds. Half of programs (n = 462; 49.95%) did not respond; a smaller subset responded but refused to participate (n = 51; 5.51%). Other programs were excluded because we had invalid contact information, the program had permanently closed, or the program no longer served 3- or 4-year-old children (n = 102; 11.03%). We received responses from at least 1 educator in 33.51% (n = 310) of the initial sample of 925 programs. Appendix Table A1 compares programs in our analytic sample against excluded programs, suggesting that, compared to the full sample of 925 programs, family child care providers were likely overrepresented in our data and public school prekindergarten programs were underrepresented. On average, two educators per responding program (SD = 2) filled out the survey, for a total of 693 respondents.

Of the 693 educator respondents, 666 (96%) had information on at least 1 of 4 well-being variables we considered as key outcomes. Our analytic sample therefore included 666 teachers in 303 programs, who were largely similar to those missing information on well-being (n = 27; see Appendix Table A2). As Table 1 shows, almost all the educators in our analytic sample were women (97.72%) and 78.37% were White, non-Hispanic/Latinx. Educators were on average 47.72 years old (SD = 11.99). The demographic composition of the sample was broadly consistent with other samples of the early educator workforce in the state (Douglass et al., 2020).

Information on educator and program features came from the educator survey, with the exception of provider type (i.e., whether a program was a community-based center, family child care, Head Start, or public school prekindergarten), which was generated by the research team using administrative records. Community-level contextual characteristics were gathered by spatially linking program addresses to publicly available data from the Massachusetts Department of Public Health (2020) and Child Opportunity Index 2.0 (COI; Noelke et al., 2020). We identified programs in 254 Census tracts and 141 municipalities.

2.2. Measures

2.11. Educator Well-Being

Educators reported on four aspects of their well-being, 3 of which came from a series of individual items capturing their perception of the pandemic’s impacts on their financial, mental, and physical well-being. Specifically, we asked educators to report their
agreement on a five-point Likert scale (1 “Strongly disagree,” 2 “Disagree,” 3 “Not sure,” 4 “Agree,” 5 “Strongly agree”) to the following three statements: “The COVID-19 pandemic has caused me financial stress,” “The COVID-19 pandemic has affected my mental health,” and “The COVID-19 pandemic has affected my physical health.” Higher scores indicated greater agreement that the pandemic had impacted their well-being.

The fourth well-being measure was constructed from five items gauging educators’ pandemic-related stress. Items on this scale were adapted from those on common stress and mental health scales, such as the Patient Health Questionnaire for Depression and Anxiety (PHQ-4; Kroenke et al., 2009) (e.g., “I feel nervous, anxious, or on edge about the pandemic”; see Appendix Table A3 for a complete list of items). Educators responded to these items with the same 5 point Likert scale, and item scores were averaged such that higher scores indicated stronger agreement that the pandemic had caused stress and anxiety. Cronbach’s alpha for this five-item measure was .81.

For consistency and comparability across all 4 outcomes, in our primary analyses we treated the well-being measures as continuous, ranging from 1 to 5. In supplemental analyses, we considered the sensitivity of our results to this analytic decision by testing 2 alternative measurement approaches. First, we generated binary items from the well-being variables representing whether educators “Agreed” or “Strongly agreed” to statements. Second, we excluded “Not sure” responses to create a 4 point scale ranging from 1 “Strongly disagree” to 4 “Strongly agree.” Additional details of analyses using these alternative approaches are in Appendix B. Results confirm that general trends are robust to measurement approach.

### 2.1.2. Ecological Factors: Educator, Program, and Community Characteristics

Information about educator and program characteristics was collected primarily via the educator survey. At the educator level, we included educator-reported information on whether their income had been affected by the pandemic, whether their own children’s education and care was disrupted by the pandemic, whether a frontline worker lived in their household, and whether they were conducting virtual instruction for students from home. At the program level, we included educator-reported information on whether the program operated as an emergency program, the safety materials and supports educators received from their school (either prior to program closures or ongoing as an emergency provider), and on the program’s financial model (whether the program relied on tuition and fees from families, as opposed to public funds). We also included provider type, given the hypothesized variation in conditions across auspices.

At the community level, we included information on the COVID-19 infection rate in the program’s municipality in the week prior to survey completion, using data from the Massachusetts Department of Public Health (2020). We also considered pre-pandemic socioeconomic (poverty rates and average educational attainment) and environmental (exposure to air pollution) conditions at the Census tract level, using indicators reported in the COI from 2015 (Noelke et al., 2020).

### 2.1.3. Covariates

We included covariates at the educator level that are related to educators’ perceived well-being, characteristics of educators’ contexts, or both. Educator covariates were collected via the survey.
and included age, race and/or ethnicity, and primary language. Binary indicators were used to represent race and/or ethnicity (1 = White, non-Hispanic/Latinx) and primary language (1 = English).

2.2. Analytic Plan

To examine how much variation in each of the outcomes was distributed across educators, programs, and communities (RQ1), we used multi-level regression models to estimate intraclass correlation coefficients (ICCs). Specifically, we estimated 2 models: the first examined the amount of variation accounted for by programs and the second simultaneously examined the amount of variation accounted for at the program and municipality level.

To examine associations between educator well-being and educator-, program-, and community-level characteristics (RQ2), we first considered the unadjusted bivariate correlations between each of the educator well-being variables and ecological factors. Given the likely salience of provider type, we then documented observed differences in outcomes across the 4 provider types and used simple multi-level regression models predicting each outcome from provider type to identify statistically significant average differences across provider types. To understand whether the other ecological factors were significant predictors of well-being beyond provider type, we next estimated a series of multi-level models predicting each of the four outcomes from all educator, program, and community characteristics, controlling for educator covariates (a total of four models). When controlling for provider type, significant ecological factors would indicate those associated with within-type differences in well-being. All models included a program-level random intercept to account for the nested structure of the data.

2.2.1. Missing Data

Two factors led to missing data. First, some educators failed to respond to certain survey questions. Missingness rates for educator and program factors drawn from the survey were low, ranging from 0.00% to 8.71% (as shown in Table 1). Second, location information was not available for some programs. We were unable to match 18 programs (5.94%) to a Census tract and one program (-1%) to a municipality due to missing or incomplete address information in administrative records. In addition, 2 programs were missing community-level data because they were in neighboring states but served children living in Massachusetts.

To address missing data and use all available information, we employed multiple imputation with chained equations (MICE) to impute 20 complete datasets. Though all analytic variables were included in the imputation process, only imputed independent variables were used in analyses. We also replicated our analyses using complete case analysis, showing the robustness of our findings to an alternative missing data approach (see Appendix Table B1).

3. Results

3.1. Early Educator Well-Being During the COVID-19 Pandemic

Table 2 displays descriptive statistics for the 4 educator well-being variables (see Appendix Figure A1 for further breakdown of item responses) and ICCs for educator well-being variables at the program and municipality levels. The ICCs indicated that much of the variation in educator-reported well-being was explained at the educator level, with all of the variation in impacts on physical well-being explained by between-educator variation. However, there was evidence of some between program variation for the remaining 3 outcomes. Specifically, we estimated that 9% of the variation in pandemic related stress, 20% of the variation in financial well-being, and 10% of the variation in mental well-being were explained by the program in which an educator worked. We also found evidence that broader community conditions, represented by municipalities, accounted for some of the observed variation in financial and mental well-being. After accounting for between-educator and between-program variation, an additional 6% of the variation in financial well-being and 6% of the variation in mental well-being were explained at the municipal level.

3.2. Associations Between Ecological Factors and Early Educator Well-Being

Table 3 presents bivariate correlations between educator well-being and ecological factors. A handful of statistically significant uncontrolled associations were observed, including with factors at the more distal level of educators’ ecologies. Perceived impacts on financial well-being was most consistently related to ecological factors. Educators working in programs with fee-based financial models and without mental health supports for adults or children tended to report greater agreement that the pandemic caused financial stress. Similarly, educators in family child care programs were more likely to agree that their financial well-being had been affected (\(\rho = 0.30, P < 0.001\)), whereas those in Head Start (\(\rho = -0.21, P < 0.001\)) and public school prekindergarten (\(\rho = -0.18, P < 0.001\)) programs were less likely to agree. At the community level, lower COVID rates, lower poverty rates, higher educational attainment, and higher air pollution were all significantly correlated with lower reported impacts on financial well-being. Appendix Table A4 illustrates systematic differences in ecological factors across provider types, and Appendix Table A5 documents bivariate correlations between ecological factors.

Building on the correlations in Table 3, Table 4 presents average response on each well-being measure by provider type. We found statistically significant differences in all four outcomes across provider types, particularly between family child care educators and those in the other three provider types. Family child care educators on average reported the lowest level of agreement that the pandemic had caused stress. They were among the least likely to agree that there had been impacts on their mental and physical well-being and the most likely to agree that there had been impacts on their financial well-being. We found few significant differences in well-being levels among educators in community-based centers, Head Start, and public school prekindergarten programs.

Table 5 presents results of multi-level regression models estimating the conditional associations between ecological factors and each measure of educator-reported well-being. Differences in outcomes by provider type remained after accounting for the other ecological factors. Family child care educators, as compared to those in community-based centers, were less likely to agree that the pandemic had caused stress (\(b = -0.31, SE = 0.12, P < 0.01\)), were marginally more likely to agree that it had impacted their financial well-being (\(b = 0.28, SE = 0.16, P < 0.10\)), and were less likely to agree that it had impacted their mental (\(b = -0.47, SE = 0.16, P < 0.01\)) or physical well-being (\(b = -0.48, SE = 0.16, P < 0.01\)). Educators in public school prekindergarten programs were less likely to agree that the pandemic had impacted their financial well-being (\(b = -0.38, SE = 0.17, P < 0.05\)), as compared to those in community-based centers, and were also slightly more likely to agree that they experienced pandemic-related stress (\(b = 0.23, SE = 0.12, P < 0.10\)). No statistically significant differences were observed between the well-being of Head Start and community-based center educators after accounting for other ecological factors.
Table 2
Descriptive statistics for educator well-being variables.

|                             | n    | % Agree/Strongly agree | Mean  | SD   | Min. | Max. | Intraclass correlations 2-level model Program | 3-level model Program | Municipal |
|-----------------------------|------|------------------------|-------|------|------|------|-----------------------------------------------|------------------------|-----------|
| 1. Pandemic-related stress  | 666  | -                      | 3.46  | 0.84 | 1    | 5    | .09                                          | .09                    | .00       |
| 2. Impacts on financial well-being | 664  | 46%                    | 3.12  | 1.27 | 1    | 5    | .20                                          | .21                    | .06       |
| 3. Impacts on mental well-being | 665  | 60%                    | 3.27  | 1.15 | 1    | 5    | .10                                          | .11                    | .06       |
| 4. Impacts on physical well-being | 665  | 31%                    | 2.60  | 1.19 | 1    | 5    | .00                                          | .01                    | .01       |

Note: All scores on a 5-point Likert scale (1 = "Strongly disagree" and 5 = "Strongly agree"), such that higher scores indicated greater agreement that the pandemic had disrupted well-being.

Table 3
Bivariate correlations between educator-reported well-being and pandemic-related stressors and supports.

| Educator well-being | (1) Pandemic-related stress | (2) Impacts on financial well-being | (3) Impacts on mental well-being | (4) Impacts on physical well-being |
|---------------------|----------------------------|------------------------------------|---------------------------------|----------------------------------|
| 1. Pandemic-related stress | 1.00                      |                                    |                                 |                                  |
| 2. Impacts on financial well-being | .34***                    | 1.00                               |                                 |                                  |
| 3. Impacts on mental well-being | .69**                     | .18***                             | 1.00                            |                                  |
| 4. Impacts on physical well-being | .47***                    | .16***                             | .67***                          | 1.00                            |

Pandemic-related stressors and supports

| 5. Income disrupted by pandemic | -.02                     | .47***                             | -.04                            | -.02                            |
| 6. Caregiver for child (res. at home) | .03                      | .06                                | .03                             | -.02                            |
| 7. Frontline worker in family | .07*                     | -.01                               | .03                             | .08*                            |
| 8. Conducting virtual instruction | -.00                    | -.05                               | .08*                            | -.05                            |
| 9. Emergency child care program | -.08*                    | .03                                | -.05                            | -.05                            |
| 10. Financial model: Family fees | -.02                     | .21***                             | -.00                            | -.02                            |
| 11. Hygiene guidance | -.02                     | .02                                | .02                             | .03                             |
| 12. Hygiene materials | .06                      | .03                                | .07*                            | .10*                            |
| 13. Mental health supports for adults | -.03                    | -.11**                             | -.05                            | .01                             |
| 14. Mental health supports for children | -.02                    | -.09*                              | -.04                            | -.02                            |
| 15. Provider type: Community-based center | .01                     | .07*                               | .08*                            | .04                             |
| 16. Provider type: Family child care | -.14***                  | .30***                             | -.18***                          | -.13***                          |
| 17. Provider type: Head Start | .04                      | -.21***                            | .01                             | .04                             |
| 18. Provider type: Public school prekindergarten | .09*                     | -.18***                            | .07*                            | .04                             |

Community-level

| 19. COVID incidence rate (cases per 100,000 residents) | .02                     | -.16***                            | -.06                            | .05                             |
| 20. Poverty rate (percent individuals in households with poverty-level incomes) | -.01                    | -.10*                              | -.08*                           | .02                             |
| 21. Educational attainment (percent adults with college degree) | -.02                    | .13**                              | .04                             | -.03                            |
| 22. Air pollution (concentration of airborne microparticles) | .02                     | .10**                              | .01                             | .04                             |

Note: Stars indicate statistical significance of bivariate correlations. * P < .05, ** P < .01, *** P < .001

Table 4
Average early educator well-being by provider type.

|                          | (1) Pandemic-related stress | (2) Impacts on financial well-being | (3) Impacts on mental well-being | (4) Impacts on physical well-being |
|--------------------------|-----------------------------|------------------------------------|---------------------------------|----------------------------------|
| Community-based center (CCC) | 3.47 (0.83)                | 3.21 (1.21)                        | 3.46 (1.12)                     | 2.65 (1.16)                     |
| Family child care (FCC)   | 3.20 (0.90)                | 3.97 (1.17)                        | 2.90 (1.24)                     | 2.25 (1.19)                     |
| Head Start (HS)           | 3.52 (0.85)                | 2.63 (1.15)                        | 3.40 (1.16)                     | 2.70 (1.19)                     |
| Public school prekindergarten (PSP) | 3.65 (0.72) | 2.52 (1.08)                        | 3.58 (1.00)                     | 2.71 (1.24)                     |

Pairwise comparisons

|                          |                        |                        |                        |                        |
|--------------------------|------------------------|------------------------|------------------------|------------------------|
| CCC vs. FCC              | **                     | ***                    | ***                    | **                     |
| CCC vs. HS               | ***                    | ***                    | ***                    | ***                    |
| CCC vs. PSP              | **                     | ***                    | ***                    | **                     |
| FCC vs. HS               | **                     | ***                    | ***                    | **                     |
| FCC vs. PSP              | **                     | ***                    | ***                    | **                     |
| HS vs. PSP               | **                     | ***                    | ***                    | **                     |

Note: Averages are observed values with standard deviations in parentheses. Multi-level models with provider-level random intercepts predicting each outcome from the four provider types were used to estimate the significance of differences. Stars indicate statistical significance of difference between average well-being among educators in the indicated provider types: * P < .05, ** P < .01, *** P < .001
Table 5
Results of multi-level models predicting educator well-being from pandemic-related stressors and supports in educators’ ecosystems.

| (1) Pandemic-related stress | (2) Impacts on financial well-being | (3) Impacts on mental well-being | (4) Impacts on physical well-being |
|-----------------------------|-----------------------------------|-------------------------------|----------------------------------|
| Educator-level              |                                   |                               |                                  |
| Income disrupted by pandemic| 0.14                              | 0.95***                       | 0.11                             | 0.11                             |
| (0.09)                      | (0.12)                            | (0.12)                        | (0.13)                           |
| Caregiver for child(ren) at home | 0.03                          | 0.11                          | 0.02                             | 0.01                             |
| (0.07)                      | (0.10)                            | (0.09)                        | (0.10)                           |
| Frontline worker in family  | 0.10                              | 0.02                          | 0.05                             | 0.18*                            |
| (0.07)                      | (0.10)                            | (0.09)                        | (0.10)                           |
| Conducting virtual instruction | -0.17                          | 0.08                          | -0.07                            | -0.29*                           |
| (0.11)                      | (0.15)                            | (0.15)                        | (0.15)                           |
| Program-level               |                                   |                               |                                  |
| Emergency child care program| -0.22                            | -0.09                         | -0.10                            | -0.14                            |
| (0.17)                      | (0.24)                            | (0.23)                        | (0.24)                           |
| Financial model: Family fees| 0.03                              | 0.18                          | -0.05                            | -0.08                            |
| (0.11)                      | (0.14)                            | (0.14)                        | (0.15)                           |
| Hygiene guidance            | -0.19                             | 0.01                          | -0.02                            | -0.02                            |
| (0.16)                      | (0.22)                            | (0.21)                        | (0.23)                           |
| Hygiene materials           | 0.21*                            | 0.12                          | 0.23                             | 0.33*                            |
| (0.11)                      | (0.16)                            | (0.15)                        | (0.17)                           |
| Mental health supports for adults | -0.14                         | -0.19                         | -0.22                            | 0.01                             |
| (0.11)                      | (0.14)                            | (0.14)                        | (0.15)                           |
| Mental health supports for children | 0.07                          | 0.08                          | 0.10                             | -0.07                            |
| (0.11)                      | (0.15)                            | (0.15)                        | (0.15)                           |
| Provider type: Family child care | -0.31*                        | 0.28*                         | -0.47**                         | -0.48**                          |
| (0.12)                      | (0.16)                            | (0.16)                        | (0.16)                           |
| Provider type: Head Start   | 0.06                              | -0.15                         | 0.08                             | -0.03                            |
| (0.14)                      | (0.19)                            | (0.18)                        | (0.18)                           |
| Provider type: Public school prekindergarten | 0.23*                        | -0.38*                         | 0.08                             | 0.13                             |
| (0.12)                      | (0.17)                            | (0.16)                        | (0.16)                           |
| Community-level             |                                   |                               |                                  |
| COVID incidence rate        | -0.00                             | -0.00                         | -0.00                            | -0.00                            |
| (0.00)                      | (0.00)                            | (0.00)                        | (0.00)                           |
| Poverty rate                | -0.00                             | -0.00                          | -0.01                            | -0.00                            |
| (0.00)                      | (0.00)                            | (0.01)                        | (0.01)                           |
| Educational attainment      | -0.00                             | -0.00                          | -0.00                            | -0.00                            |
| (0.00)                      | (0.00)                            | (0.00)                        | (0.00)                           |
| Air pollution               | 0.09                              | 0.14                          | 0.22                             | 0.17                             |
| (0.12)                      | (0.16)                            | (0.15)                        | (0.15)                           |
| Observations                | 666                               | 664                           | 665                              | 665                              |

Note: All models include program-level random intercept to account for nesting of educators within providers. Models control for educator demographics (age, race/ethnicity, and language). Reference category for provider type is community-based center. Standard errors in parentheses. * * * P < .001, * * P < .01, * P < .05, + P < .10.

A handful of other ecological factors beyond provider type were statistically significant predictors of educator well-being. Income disruptions were associated pandemic-related impacts on financial well-being. Educators who experienced a pandemic-related income disruption were more likely to agree that the pandemic had impacted their financial well-being than educators who did not, after controlling for educator, program, and community factors (b = 0.95, SE = 0.12, P < 0.001). Educators conducting virtual instruction were less likely to agree that the pandemic impacted their virtual instruction (b = -0.29, SE = 0.15, P < 0.10), whereas educators with a frontline worker in their families were more likely to agree (b = 0.18, SE = 0.10, P < 0.10). All other associations between educator-level characteristics and well-being were not significant.

At the program level, only the availability of hygiene materials was a marginally significant predictor of educator-reported well-being, beyond provider type and other ecological factors. On average, educators with access to hygiene materials were more likely to agree that the pandemic had induced stress (b = 0.21, SE = 0.11, P < 0.10) and had impacted their physical well-being (b = 0.33, SE = 0.17, P < 0.10). Finally, none of the community factors considered in the analyses were found to be significant predictors of educator-reported well-being after accounting for other ecological factors and educator covariates. In sum, although educators reported stress and changes in their well-being at the start of the pandemic, few ecological factors other than provider type were robust predictors of these outcomes.

4. Discussion
The COVID-19 pandemic has brought to light the essential nature of the work early educators do in caring for the nation’s youngest children. At the same time, the global health crisis has directly threatened their ability to perform this critical work. In this paper, we examined the consequences of the COVID-19 pandemic on early educators’ well-being in Massachusetts at the start of the pandemic when most early education and care programs had ceased in-person operations. Specifically, within a large sample representing early educators across the full range of group-based early education and care provider types (i.e., community-based child care, family child care, Head Start, and public school prekindergarten), we considered variation in educators’ perceptions of the pandemic’s impacts on their well-being and how contextual features at the educator, program, and community levels were linked to these self-reported impacts. Understanding the pandemic’s influence on early educator well-being is critical insofar as well-being undergirds one’s ability to live a healthy and happy life (Cohen et al., 2007). Moreover, educator health and well-being play a well-documented role in supporting high-quality early learning environments and, in turn, children’s development (Hall-Kenyon...
et al., 2014; Hanno, Jones, & Lesaux, 2021). By foregrounding the lived experiences of early educators during the pandemic, this work can help develop a strategy to build back the early education and care sector in a way that ensures all children have healthy, responsive caregivers.

Our findings lay bare the pandemic’s consequences for early educators, even in its earliest days. Three in 5 educators agreed that the pandemic had adversely affected their mental well-being, and nearly one in 2 agreed that it had affected their financial well-being. Over a quarter of educators in our sample agreed that the pandemic changed their physical well-being. Early educators in other states have reported similarly high levels of pandemic-related stress and mental health challenges (Swigonski et al., 2021; Welland et al., 2021). Although evidence is mounting that the pandemic had widespread, adverse impacts on well-being for many individuals and communities (Xiong et al., 2020), there is reason to believe the consequences may be particularly severe for early educators. For example, agreement among early educators that the pandemic had affected their financial well-being was greater than among the families of young children in Massachusetts who were also participating in the Early Learning Study (31% of whom agreed that the pandemic had caused financial stress; Gonzalez et al., 2020).

It was also clear that the pandemic has disproportionately affected certain subpopulations of educators. By adopting an ecological perspective on educator well-being, we gained insight into which groups were particularly vulnerable to the pandemic’s initial effects and which were largely insulated from its impacts. Most notably, we found that provider type—whether a program was a community-based center, family child care, Head Start, or public school prekindergarten—was consistently related to educators’ experiences of pandemic-related stress and impacts on their well-being, even after accounting for other ecological factors. Specifically, educators in family child care programs and community-based centers were more likely to agree that they had experienced economic consequences than were those in either Head Start or public school prekindergarten programs. This finding is in line with recent work from Virginia suggesting that educators in child care centers were more susceptible to the pandemic’s impacts than those in public schools (Bassok et al., 2020). We also found that family child care teachers were less likely than those in all other provider types to agree that the pandemic had caused stress or had impacted their mental or physical well-being. This finding is consistent with other work from Virginia showing that educators in family child care programs reported lower rates of depression in Spring 2020 than those in either schools or centers (Markowitz et al., 2021).

Differential impacts on stress and well-being across provider types may be attributable to differences in resources. For example, many family child care and community-based centers do not receive public funds to operate and were likely less able to access COVID-specific relief dollars from the state and federal governments than were publicly funded programs. Family child care providers designated as self-employed by the Internal Revenue Service were also ineligible for unemployment insurance (Warren et al., 2020). Since we collected our data, family child care and community-based centers were also initially left out of state-supported COVID-19 testing launched in early 2021 for educators in Massachusetts (McNerney & Jung, 2021). The testing program came as many public school-based programs continued to operate remotely, although family child care and community-based programs had largely returned to in-person operations during Summer 2020. As Markowitz and colleagues (2020) hypothesized, differential consequences by provider type may have also been a function of variable job demands, particularly those associated with conducting remote instruction for young children. Greater expectations for remote instruction in community-based centers, Head Start, and public school programs, as compared to family child care providers, may explain differential reports of pandemic-related stress and threats to mental health. Taken together, the findings underscore the importance of making resources available across the early education and care sector, particularly for those whose operating models may be most vulnerable.

We also found that access to hygiene materials, including items such as masks, soap, and hand sanitizer, was related to 2 well-being outcomes, beyond provider type and other ecological features. Although we anticipated that having access to personal protective equipment might insulate educators from the pandemic’s threats, particularly to physical well-being, we found the opposite: having hygiene materials was marginally associated with greater agreement that the pandemic had caused stress and impacted their physical well-being. It may be that unmeasured confounders related to working conditions or the severity of highly localized COVID-19 outbreaks could explain these unexpected associations. For example, educators who had received protective gear by the time of our survey could have been concentrated in centers serving children of frontline workers most likely to be exposed to the virus, rendering the work more stressful for educators.

Our finding of largely null associations between the other educator, program, and community factors and educator well-being could similarly be explained by the complex associations among ecological features. Although we found uncontrolled bivariate associations between educator well-being and various contextual characteristics, including at the community level, most associations (with the exception of those discussed above) disappeared when we applied our multi-level regression approach. In line with this pattern of results, Jeon et al. (2018) found that several features of early educators’ work environments correlated with depression, perceived stress, and job exhaustion, but that only a few remained significant predictors of well-being when they were simultaneously included in regression models. As with many of the contextual features in our study, the authors found that environmental features were strongly correlated with one another. From a methodological perspective, the co-occurrence of contextual characteristics renders it difficult to parse the individual contributions of specific features using traditional regression approaches. From a practical perspective, it suggests that no one factor is likely to be particularly critical in explaining educator well-being. Indeed, when asked about the pandemic’s impacts on their own families, many educators in our sample described multiple stressors spanning the personal and professional. One provider in our sample explained, “It has been difficult keeping on top of both of my children’s school work while I was taking my own college class, working from home and trying to maintain my home as a single parent.” The complexity of early educators’ lives highlights the need for future research adopting more ecologically valid methodological approaches, such as person-centered mixture modeling, that can offer insights into how numerous environmental conditions holistically relate to educators’ well-being.

The longer-term consequences of the pandemic for early educator well-being are unknown. However, our initial findings suggest that the crisis has only served to exacerbate the field’s existing well-being challenges, which are central to broader issues of workforce retention and program quality. These findings are particularly striking given evidence of high pre-pandemic levels of stress, burnout, and other threats to well-being (e.g., depression and physical ailments) among early educators (Johnson et al., 2020; Whitaker et al., 2013). Additionally, while our findings reinforce the importance of continued attention to the financial solvency of early education and care programs, they also highlight the need to broaden our focus to include other aspects of educator well-being. Even in programs that successfully weather the
pandemic’s economic storm, early educators are likely to require supports to help them overcome other challenges and stress associated with the pandemic.

4.1. Limitations and Future Directions

This study is among the first to examine how the COVID-19 pandemic has affected early educator well-being. More research is needed to understand the full impact on educators, especially given that the pandemic is well into its second year. We note several limitations of the current study and highlight aligned directions for future research on the topic. First, although our study captures a large and diverse sample of early educators working with 3- and 4-year-old across Massachusetts, it excluded the perspectives of early educators working with infants and toddlers as well as those in other states who likely experienced distinct contextual stressors and supports. Most programs nationwide experienced closures in the early days of the pandemic, but Massachusetts was unique in its months-long statewide closure of nearly all group-based settings (Weiland et al., 2021). Moreover, our sample may not represent the experiences of all educators in Massachusetts given the relatively low, albeit typical, response rate to our survey. It is also unlikely that educators in our sample represent the perspectives of all educators working in settings in our sample. Future research should therefore aim to generate broad representative findings to guide the allocation of limited resources for early education and care. It is particularly important to ensure that the unique experiences and perspectives of early educators from historically marginalized communities are represented. Specifically, educators of color and those from low-income communities are likely to face additional structural barriers that may also influence their well-being. In-depth interviews may be one promising methodological approach to generate a more nuanced understanding of early educators’ experiences.

Second, the current study used simple, self-reported measures of educator well-being to gain an initial sense of the pandemic’s consequences. Future work should consider pandemic-specific measures like ours in tandem with more general measures of well-being that have been previously linked to program quality and children’s development (e.g., work-related stress and clinical measures of depression). Examining these two types of measures together over time will yield insight into the pandemic’s longer-term implications for educator well-being. Relatedly, we considered only a subset of ecological factors in our analyses; certainly, we lacked information about other salient factors such as educators’ household income or COVID-19 outbreaks within early education and care settings. Future analyses should consider a larger set of ecological factors.

Third, our community-level contextual features aligned with program location, as opposed to educators’ residences. Although evidence shows that school communities are an important ecological context for educators and children in their own right (McCoy, Sabol, Hanno, & Odgers, 2022; Wei et al., 2021), many educators are likely exposed to distinct residential community conditions that should be included in future ecologically oriented studies of educator well-being. Fourth, this work is cross-sectional and observational, meaning we are unable to estimate the causal impact on educator well-being of either the pandemic itself or ecological factors. Inventive study designs that support quasi-experimental methods could more accurately portray how educator well-being evolved over this tumultuous period.

5. Conclusions

Early educators play a critical role in our society, allowing parents with young children to work and preparing young children for success in kindergarten and beyond. The pandemic has made performing these essential job functions challenging by shuttering programs, shifting operations, and, as we show in this paper, influencing educators’ perceptions of their well-being. Many early educators agreed that the pandemic has caused stress and influenced their mental well-being, both of which might undermine their ability to be supportive, responsive caregivers for young children. At the same time, early educators in certain provider types have largely borne the brunt of the pandemic’s impacts. As we seek the best ways to rebuild this essential yet fragile sector, understanding educators’ diverse experiences can help us create strategies to support their essential role. Only by understanding educators’ needs can we begin to care for them.

Authors statement

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Supplementary materials

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