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Health status of childcare center providers in a COVID-19 hotspot

Cynthia N. Lebron[a,*], Yaray Agosto[b], Rohit Nair[c], M. Sunil Mathew[c,d], Ruby Natale[e] and Sarah E. Messiah[c,d]

[a]*School of Nursing and Health Studies, University of Miami, Miami, FL, USA*
[b]*Robert Stempel College of Public Health and Social Work, Florida International University, Miami, FL, USA*
[c]*Health Science Center at Houston, University of Texas School of Public Health, Dallas Regional Campus, Dallas, TX, USA*
[d]*Center for Pediatric Population Health, Children's Health System of Texas, University of Texas Health Science Center, Dallas, TX, USA*
[e]*Mailman Center for Child Development, University of Miami Miller School of Medicine, Miami, FL, USA*

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Abstract.
BACKGROUND: Childcare center providers in Miami-Dade County, Florida a COVID-19 hotspot, are made up almost entirely of ethnic minority women. This is a critical frontline staff that is now encountering the triple threat of respiratory illnesses from respiratory syncytial virus (RSV), influenza viruses (or the seasonal flu), and COVID-19.
OBJECTIVE: To examine sociodemographic characteristics, anthropometrics, and health behaviors that were collected from a sample of CCC teachers in Miami Dade County, a COVID-19 hotspot.
METHODS: Cross-sectional data were used from Healthy Caregivers, Healthy Children (HC2), a randomized controlled intervention trial (#NCT02697565) for healthy weight maintenance among children 2-to-5 years old, conducted in 24 subsidized childcare centers in MDC in 2015–2018. Prevalence was determined by frequency or mean/standard deviation of each variable. Chi-squared analyses were performed to test for differences in BMI categories.
RESULTS: In this sample of childcare center providers ($n = 255$), the majority (61%) had an elevated body mass index. Positive health behaviors such as regular exercise and eating fruits and vegetables were only reported in about a third of the sample.
CONCLUSION: It is vital that we encourage the uptake of regular vaccination schedules as a means to protect our community, especially the critical frontline workers that have been caring for our young children.

Keywords: Daycare, minorities, Hispanic, Black, women

1. Introduction

As the 2021 school year began in the United States, Florida remerged as the epicenter of the country's COVID-19 crisis having reached its highest single-day total on August 13, 2021 of new cases (25,991cases/day, 19.3% positivity) [1, 2]. With the

*Address for correspondence: Cynthia N. Lebron, PhD, MPH, Assistant Professor, School of Nursing and Health Studies, University of Miami, 5030 Brunson Drive, 432F Coral Gables, Florida 33146, FL, USA. E-mail: clebron@miami.edu.

highly contagious Delta variant fueling this surge, Florida's August report saw almost 7 times more cases among children under 12 than at the start of the 2020–21 school year (16,754 vs 2,396) [1]. Even with evidence that the Delta variant was more infectious leading to increased transmissibility [3] and the SARS-CoV-2 vaccine becoming available to children 6 months to 5 years in June 2021, vaccine requirements and mask mandates became highly contentious at schools. Moreover, Florida Governor Ron DeSantis placed a ban on mask mandates in public schools threatening the salaries of school officials who defy the ban [4]. September 2021 was Florida's month with the highest average deaths [5]. The 2021–2022 winter surge of COVID-19 saw the highest average cases in the country. Although cases waned, health experts began to fear the pattern of winter surges. What emerged in the winter of 2022–2023 was a triple threat of respiratory illnesses from respiratory syncytial virus (RSV), influenza viruses (or the seasonal flu), and COVID-19. In fact, in early November 2022, the Centers for Disease Control and Prevention issued a health advisory about increased activity in respiratory infections and among children in particular [6].

Children, especially younger children, are the most at risk for infection and complications for each of these viruses. COVID-19 hospitalization rates for children 0 to less than 6 months are three to four times higher compared to 6 months to 4 years [7]. Infants typically have the highest rates of influenza hospitalizations [8] and nearly double the risk of RSV-related death compared to other children under five [9]. Importantly, infants younger than 6 months, who are the most at risk, are still too young to be vaccinated against influenza or COVID-19. As we consider the infants who are at risk, we need to also always consider the people caring for our youngest. Many Florida childcare centers (CCCs) remained operational since the start of the pandemic to provide care for the children of essential frontline workers. CCCs were required to follow strict Centers for Disease Control and Prevention (CDC) guidelines, including intensified cleaning and disinfection, modified drop-off and pick-up practices, screening children upon arrival, and the adequate ratio of staff to children (limited to groups of 10 or fewer) [10]. However, many of these precautions have now been relaxed.

Childcare is a labor-intensive industry with irregular work hours and typically low wages ($11.65 per hour) that disproportionately employs ethnic minority women [11]. The pandemic has placed pressure on this already fragile industry that many families, especially those of essential workers, are dependent on. Childcare centers have faced financial and logistical challenges due to reduced enrollment and difficulties meeting CDC safety guidelines, with over 70% of childcare centers incurring considerable additional costs for staff (72%), cleaning supplies (92%), and personal protective equipment (81%) [12]. In Miami Dade County, Florida, 70% of childcare centers were open as of mid-July 2020 [13], raising serious concern about childcare providers' health. While much of the national attention is on teachers' risk, little data exists to document their health status, and this is particularly true in those who work in CCCs. This is also troublesome given the racial/ethnic disparities of COVID-19 infections, hospitalizations, and death. In this study, we examined sociodemographic characteristics, anthropometrics, and health behaviors that were collected from a sample of CCC teachers in Miami Dade County, a COVID-19 hotspot.

2. Methods

Cross-sectional data were extracted from Healthy Caregivers, Healthy Children (HC2), a randomized controlled intervention trial (#NCT02697565) for healthy weight maintenance among children 2-to-5 years old, conducted in 24 subsidized childcare centers in MDC in 2015–2018. Childcare teachers delivered the HC2 intervention to children and were thus pivotal change agents in the study. The following selection criteria were used to determine childcare center eligibility: (1) more than fifty 2-to-5-year-olds attending the center; (2) ethnicity reflective of MDC's population; (3) serving low-income families; and (4) center director agreement to participate. Centers covered the entire county including rural and urban areas. Teachers included in both intervention and control centers were included in this analysis.

2.1. Measures

Teachers and staff at childcare centers self-reported sociodemographic variables including age, sex, country of origin, and level of education. They completed questionnaires about their health and nutrition using SNAP-Ed's Fruit and Vegetable Inventory [14] in either English or Spanish. Physical activity was assessed using the transtheoretical model of behavior change [15] where participants were asked to choose from six options about their current exercise (e.g.

"Exercise regularly and have done so for more than six months.") Additionally, teachers and staff self-reported height and weight that was used to calculate body mass index (BMI = kg/m^2). BMI was categorized using the CDC's definition of adult overweight and obesity [16].

2.2. Analysis

Prevalence was determined by frequency or mean/standard deviation of each variable. Chi-squared analyses were performed to test for differences in BMI categories. Statistical significance was set at $p = .05$. SPSS V26 was utilized for analysis.

3. Results

The study sample consisted of 255 childcare teachers and staff. Table 1 includes sociodemographic characteristics as well as health information. Their ages ranged from 18–77 (mean = 41.29; SD = 11.8). Ninety-four percent identify as either Hispanic or non-Hispanic Black. Participants were mostly born outside of the United States (74.1%) and the majority had less than a bachelor's degree (74.0%). Almost two-thirds had unhealthy weight (61.8%). Among those with obesity ($n = 65$), 61.5% were Class I, 23.1% were Class II, and 15.4% were Class III. There was no statistical difference by BMI category. Less than a third of participants reported consumption of the recommended daily number of fruits and vegetables and only 1 in 5 reported exercising regularly.

4. Discussion

The current study describes the sociodemographic characteristics, anthropometric, and health behaviors of CCC teachers and staff in a COVID-19 hotspot. In this sample, the majority (61%) had an elevated BMI. Moreover, health behaviors such as regular exercise and eating fruits and vegetables were only reported in less than a third or less of the sample. The CDC has listed obesity as one of eight risk factors for severe illness and death due to COVID-19. Obesity not only increases the risk of severe illness from COVID-19, but it may also triple the risk of hospitalization due to COVID-19 [17]. Obesity's detrimental effects on lung capacity as well as its potential to inhibit appropriate immune responses make it a risk factor for severe COVID-19 infection [18]. These findings are particularly troubling given this is considered a frontline essential workforce who are working with a population who are under the age of vaccination. Moreover, they are now working in an environment where multiple viruses are co-circulating, especially among children.

Almost the entire sample consisted of Hispanic and non-Hispanic Black women whose ages ranged from young adults to elderly. The race/ethnicity demographics of childcare teachers in this sample reflect minorities who have been disproportionately affected by COVID-19. Hispanic and non-Hispanic Black Americans are also at higher risk for comorbidities of COVID-19, such as diabetes, cardiovascular disease, obesity, and hypertension [19]. The childcare profession is disproportionately made up of women of color, 37% of childcare staff are non-white [20] compared to 20% of K-12 teachers [21]. Minority women are also more likely to be breadwinners for their family [22] and with Miami's distinction as US metropolitan area with the highest inflation (as of December 2022) [23], these childcare workers are dealing with difficult decisions [24].

The childcare centers in this sample are located in four out of five MDC neighborhood COVID-19 hotspots, which include Allapattah, Brownsville, Little Havana, Cutler Bay, and Homestead [25] (this data is now only available by request). These hotspots are largely home to a low-income minority population. The childcare industry, which is considered an essential service in Florida, has remained open through the pandemic. The Paycheck Protection Program (PPP) that enabled centers that received funds to pay staff and cover fixed costs ended on May 31, 2021. Notably, the distribution of funds had been disproportionate, as 72% of large childcare centers reported receiving PPP funds compared to 29% of small childcare centers and 17% of family childcare homes [12].

The CDC's guidance for operating early care and education/childcare programs includes at the forefront vaccination and masks. Over the course of the vaccination rollout, there were major differences between vaccination rates for non-Hispanic Black, Hispanic, and non-Hispanic White people. And though the gap has closed, non-Hispanic Black and Hispanic adults have lower rates of the updated (bivalent) booster dose leaving them at increased risk [26]. This is especially important in CCCs where caring for infants and toddlers does not allow for the social distancing practices of teaching older children. The CDC has also developed guidelines for care such

Table 1
Sociodemographic & health characteristics of 255 childcare center teachers and staff

Variable	Mean (SD) or %
Female ($n = 253$)	99%
Age ($n = 244$)	41.3 (11.8)
Race/ethnicity ($n = 254$)	
Hispanic	77.1%
Black	16.9%
White	3.1%
Other	2.9%
Country of origin ($n = 251$)	
United States	25.9%
Cuba	41.4%
Mexico	5.6%
Dominican Republic	5.2%
Years living in the US (foreign born; $n = 164$)	15.8 (10.8)
Preferred language ($n = 251$)	
English	41.4%
Spanish	57.8%
Other	0.8%
Education ($n = 250$)	
Less than high school	4.8%
Completed high school	27.2%
Some college	26.8%
Associate's degree	15.2%
Bachelor's degree	19.2%
Graduate degree	6.8%
Role ($n = 255$)	
Teacher	94.5%
Director	3.5%
Staff	2.0%
Body Mass Index (BMI; $n = 233$)	27.9 (6.8)
BMI categories	
Underweight	0.9%
Normal weight	37.3%
Overweight	33.9%
Obese	27.9%
Class I*	61.5%
Class II*	23.1%
Class III*	15.4%
Health & nutrition	
Eating recommended number of fruit ($n = 179$)	30.7%
Eating recommended number of vegetables ($n = 178$)	24.7%
Exercise regularly ($n = 248$)	19.4%
Eating habits are 'good' or 'excellent' ($n = 181$)	46.4%

*The rates presented here are inclusive of obese only.

as diapering, washing, feeding, or holding a child [10]. Among keeping areas clean and disinfected, childcare workers are advised to wear an "over-large button-down, long-sleeved shirt" and wear long hair up off the collar, to wash their body anywhere touched by a child's secretion, and to change the child's clothes if secretions are on the child's clothing [10]. Additionally, with the threat of germs and contaminants spreading through the air, increasing outdoor air intake and improving indoor ventilation is especially important [27]. The CDC has several building recommendations for ventilations in schools and childcare programs like bringing in as much outdoor air as possible, filtering and/or clearing the air, and using exhaust fans in restrooms and kitchens [28]. Even with these recommendations in place, emerging COVID-19 variants and the natural evolution of seasonal influenza means that a unique combination of more transmissible strains may emerge [29].

As the national attention focuses on pediatric care, it is crucial that the childcare environment, including teachers and staff, are a part of all conversations concerning employee safety and health. This will help ensure the children in their care stay healthy, too. As

Swigonski et al. stated, it is time "for administrators, policy makers and stakeholders to provide improved supports for the psychological, physical and financial well-being of the ECCE [early childhood care and education] workforce that is consistently overworked, underpaid, and yet, invaluable" [24]. Future research should focus on how best to use resources to protect and value these critical front line workers.

4.1. Limitations

This study provides a snapshot of the health characteristics and demographics of CCC educators in data collected before the onset of the COVID-19 pandemic. We do not present data of current CCC educators which may be limiting as the pandemic could have vastly changed the health of the present workforce.

5. Conclusions

The health of the CCC workforce is at risk as this sample demonstrates. Preventing illness in CCC educators can keep them from, at minimum, quarantining and missing work and thus impacting child's education. As they make the difficult decision to work or risk becoming infected, CCC educators deserve to receive the same level of national attention and scrutiny as teachers in schools are receiving in the context of the pandemic.

Ethical approval

The University of Miami and University of Florida Institutional Review Boards approved the study.

Informed consent

Center directors, teachers and staff consent to participate in the study at the beginning of year 1.

Conflict of interest

The authors have no conflicts of interest to report.

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