



Disparities in the Effects of the Covid-19 Pandemic on Families of Preschool-aged Children in Northern California

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Abstract

The COVID-19 crisis and subsequent shelter-in-place orders caused unprecedented challenges for young children and their families. Understanding the scope and nature of these effects can inform federal and state policies and advocacy efforts to minimize disruptions to child development and well-being. This study aims to examine pandemic-related impacts and its potential disparities based on demographic characteristics, such as gender, ethnicity, and immigration status. In this survey of 3,867 parents of preschool-aged children in Northern California, results indicate the COVID-19 pandemic overwhelmingly restrained parents' access to Early Childhood Education and Care (ECEC) and intervention services. Data describing gender, ethnicity and immigration status also exhibit divergent patterns of loss of access to ECEC and other necessities. Authors discuss how the pandemic and lockdown exacerbated some of the prolonged, structural inequities existing in the United States prior to the onset of the pandemic.

Keywords: COVID-19, ECEC closures, family well-being

Introduction

Beginning in 2020, the COVID-19 crisis disrupted all aspects of families' routines, resulting in unprecedented levels of social and economic distress. Additionally, the social distancing, isolation strategies, and country-wide lockdown measures to help reduce virus transmission created stressful experiences for families and children ([He et al., 2021](#)). Closures and other pandemic-associated challenges created a shortage of adequate and affordable Early Childhood Education and Care (ECEC) (United Nations, 2020; Weiland et al., 2021; Yoshikawa et al., 2020). Disruptions in routines and loss of high-quality ECEC programs may indicate short and long-term detrimental impacts on young children's optimal development. Consistent research describing the benefits for access to high-quality ECEC is also vital for parents with young children because it illustrates the balance between work and childrearing responsibilities which, in turn, leads to a family's financial stability to create a safe and nurturing environment for children's social, physical, emotional and cognitive development as well as family well-being (mental health) (Lee & Parolin, 2021; Tulsa SEED Study Team, 2020; Zigler & Bishop-Josef, 2006).

Yet, empirical evidence reveals disruption in access to ECEC and how families coped with this challenge become significantly associated with sociodemographic characteristics such as ethnicity, immigration status and gender (Morales et al., 2021; Singletary et al., 2022; Park, 2021; van Leer et al., 2021). For instance, ECEC disruptions and the associated economic hardships show to be more frequent and significant for low-income households as compared with middle/upper-income families (Karpman et al., 2020). Parents were stretched to their limits as they juggled employment loss or disruptions, prolonged telecommuting, home confinement and compromised psychological well-being; all of which can negatively influence effects on children's growth and development (RAPID, 2022a; van Leer et al., 2021). Moreover, parents belonging to systematically disadvantaged communities were significantly less confident about meeting basic needs, especially providing an adequate quality and quantity of food to support their child's healthy development (Morales et al., 2021). As policymakers consider additional measures to mitigate the health and economic effects of the pandemic on young children and their families, it is imperative for researchers and practitioners to recognize and target unique needs correlating with different demographic characteristics (Patrick et al., 2020).

Literature Review

Early childhood development reflects a crucial role in establishing a strong foundation for optimal growth and development, including achievement, social/emotional competence and well-being (Lee & Parolin, 2021; Magnuson & Duncan, 2016; Zhang et al., 2022). High-quality ECEC arrangements featuring a safe and healthy environment, warm and responsive caregivers, appropriate materials and scaffolding experiences which provide stimulation and support necessary for mastering the central cognitive and social developmental challenges of early childhood become especially important (NICHD Early Child Care Research Network 2001; Votruba-Drzal et al., 2004). Earlier research overwhelmingly suggests that attending high quality ECEC services for one or two years leads to long-term benefits in educational attainment and economic earnings, despite any temporary decline in achievement skills during the elementary school years (Magnuson & Duncan, 2016; Yamaguchi et al., 2018). Felfe et al. (2015) describe

ECEC enrollment for young children of mothers with low educational attainment and report ECEC enrollment significantly helped the children catch up on language development and social/emotional development skills even after showing higher levels of inattention, aggression and hyperactivity when entering their ECEC programs.

Extensive studies consistently indicate both ECEC enrollment and access to high quality ECEC settings work together in promoting positive home environments, facilitating parents' positive adjustments to parental roles, and enhancing their overall well-being, all of which significantly contribute to positive developmental outcomes for children (Gelber & Isen, 2013; Gershoff, 2002; Yamaguchi et al., 2018). For example, Yamaguchi et al. (2018) discuss how ECEC enrollment helps mothers with lower educational levels by reducing their stress associated with raising a child; informing the mothers with good parenting practices may, in turn, improve their parenting quality. While the nature of the study programs may vary, these findings are consistent with theoretical evidence from developmental psychology regarding the effects of access to high quality ECEC on parental outcomes, including the Family Systems Theory (Broderick, 1993; Christian, 2006; Cox & Paley, 1997).

Conceptual Framework

A structuralist approach used in both the natural and social sciences, Family Systems model posits bidirectional relationships between individual family members and the functioning of the family as a collective entity (Broderick, 1993; Christian, 2006; Cox & Paley, 1997). This conceptual framework emerged in the field of family therapy to help explain how a family as a whole adapts to an array of rapid changes, demands, and stagnations in light of the role of family context in understanding individual and interpersonal dynamics. Rather than limiting focus to individual family members, the family systems model focuses on the complex web of individual, interpersonal and environmental or macrosystemic factors. For instance, applying family systems theory to their ECEC practices means not just focusing on individual children or parents, but rather looking at them in the larger context of their families, while educators and practitioners understand how to engage in meaningful interactions and care for the children and their families (Christian, 2006; Stanton & Welsh, 2012). In a similar vein, loss of ECEC access and disruptions in routines related to childrearing may be detrimental not only to young children, but as well to their parents, especially regarding their capacities to balance work and childrearing responsibilities, to offer a safe and nurturing environment for children's socioemotional, physical and cognitive development and finally, to provide for the overall family well-being (Lee & Parolin, 2021; Zigler & Bishop-Josef, 2006). Guided by the Family Systems model framework and subsequent empirical evidence, the current study examines how those negative effects manifest in some communities disproportionately, in light of prolonged, structural inequities that had been present in the United States before the onset of the pandemic.

Background

In response to the COVID-19 pandemic prevention and control measures, many ECEC centers closed their doors and/or switched to remote learning, compelling parents of young children to assume an increased role in children's education and to provide this learning without sufficient digital technology. During the pandemic, young children's ECEC participation declined from

61% to 8% (Barnett & Jung, 2020; Barnett, et al., 2020), 36% more parents reported difficulty finding ECEC in the year 2022 than previously (RAPID, 2022b), and 34% of parents indicated challenges in finding alternative ECEC arrangements (e.g., babysitters and relatives) (RAPID, 2022b). Among parents who have relatively promising access to ECEC arrangements, there was a 21% increase in childcare disruptions due to staffing challenges and/or COVID-19 exposures among both family members and childcare providers (RAPID, 2022b).

The closure of ECEC and intervention services resulted in the loss of resource materials and opportunities for young children and their families to learn important social and behavioral skills, as well as the loss of interacting with peers (Lee, 2020). Evidence suggests that while children are out of school, they are physically less active, experience longer screen time, and are more likely to have irregular sleep patterns and less favorable diets, resulting in weight gain and a loss of cardiorespiratory fitness (Brazendale et al, 2017; Wang et al., 2020). Such negative effects on health are likely to be much worse for children who do not receive training, therapy and other treatments (Singh et al, 2020). Extant work indicated some children become more vulnerable to the ECEC access crises, such as those with a neurodevelopmental disorder or disability (e.g., attention-deficit/hyperactivity disorder [ADHD], autism spectrum disorder [ASD], cerebral palsy), chronic health condition (e.g., diabetes, obesity) or from families with financial concerns (Bussi res et al., 2021). A recent literature review also suggests these children are at higher risk of being derailed from therapy sessions and special education programs in facing the effects of the pandemic and its impacts on access to health care resources and support networks while being confined to their homes without outdoor activities and interaction with same-aged friends during the outbreak (Singh et al., 2020).

California is one of the most ethnically, linguistically, and socioeconomically diverse states in the nation. In this state, the pandemic created a crisis in access to adequate, affordable ECEC providers and illuminated persistent underinvestment in ECEC (Lee & Parolin, 2021; Tout, 2021). Although policymakers in California implement a plethora of measures to mitigate the health and economic effects of the pandemic, parents continue to seek ways to balance their work and childrearing responsibilities (Lee & Parolin, 2021; Tout, 2021). A recent state-wide parent survey indicated 90% of parents believe California should invest greater public funds to ensure infants and toddlers in California are healthy and developmentally on track at birth and throughout childhood (Education Trust-West, 2021). California evidences nearly the highest number of children in poverty of all states; households with an income lower than \$50,000 a year become particularly at risk of losing adequate access to high-quality ECEC due to layers of systemic discrimination, including disparities in access to jobs that represent a living wage, high costs of living, lack of access to quality subsidized ECEC, exclusionary immigration policies, barriers to equitable housing opportunities and discriminatory criminal justice policies (Education Trust-West, 2021).

These earlier reports urge a nuanced, careful investigation toward more equity-based policies and early intervention efforts to help minimize the impacts of the pandemic-related crises on young children and their families regardless of their demographic background. However, minimal research findings shed light on potential disparities in life experiences and daily challenges of families with young children. In order to target this existing disparity in the literature, this current study examines the impact of the COVID-19 pandemic and the subsequent ECEC

closures on families with preschool-aged children in Northern California, in light of their ethnicity, gender and immigration status.

Purpose of Current Study

Guided by earlier work and Family Systems Theory, the current study aims to examine the associations between demographic factors and pandemic-related impacts as well as identify their potential disparities based on demographic characteristics among families with preschool-aged children. With the gathered survey data ($N = 3,867$ parents) of preschool-aged children in Northern California during a period of ECEC closure, data provide descriptive, demographic information and parent-reported challenges related to childrearing (i.e., access to quality ECEC, access to therapy and interventions for children) as well as reported overall well-being (i.e., physical health, life stress, and household financial stability).

Next, correlations describe how the pandemic-related negative effects associate with demographic characteristics (participants' gender, race/ethnicity, and immigration status). Finally, regression analyses describe the effects of the participants' educational attainment, household income, household size, the number of children in the household during the pandemic, living with at least one child with special needs and losing one's job during the pandemic. The results of this current study become relevant in light of evidence-based policy programs and early intervention efforts to minimize the impacts of the pandemic-related crises on preschool-aged children and their families.

Methods

Participants

The research team distributed an online survey targeting parents of preschool-aged children (three-to-five-year-olds) through local ECEC agencies across the Northern California region. The duration of the data collection period was from January 2021 to February 2021. In total, 4,017 participants responded to the survey. For the current study, the population included 3,867 participants. These participants completed all survey questions and currently live with at least one preschool-aged child (biological/step/adoptive). The survey was available in both English and Spanish. Participants were asked to choose one of the two survey languages that they felt most comfortable. A \$10 electronic gift card was provided as remuneration for completing the survey. All procedures were approved by the university's Institutional Review Board and all participants provided informed consent.

Descriptive statistics of the sample are presented in Table 1. Slightly over 50% of the participants identified female as their gender identity, and 49.7% identified as male. The majority of the sample was White (54.4%), followed by American Indian or Alaskan Native (15.5%), Black or African American (12.4%), Asian American (8.4%), and Latinx (6.6%). Also, the majority of the participants represented as U.S. citizens (88.8%). A total of 57.1% had a Bachelor's Degree or Graduate Degree, and 56.6% of the sample reported their income higher than \$75,000, which is close to the median household income in California (\$75,235) (United States Census Bureau, 2019). A total of 94% lived in a household with one or two children

during the pandemic and 44% reported living with at least one child with special needs. About one-third of the sample (30.7%) reported that they had lost their jobs during the pandemic. Researchers relied on the respondents' self-report of their demographic characteristics.

Measures

The survey consisted of several scales originally developed in English (Table 2). To assure linguistic and contextual equivalence of the variables relevant to the study and to standardize the administration of surveys across the selected languages, the research team worked with two separate bilingual Spanish native speakers who were fluent in English and educational research, one for translation and another for back-translation from Spanish to English, following recommendations to ensure validity and reliability (Foster & Martinez, 1995).

Life Stress

The 10-item version of the Perceived Stress Scale (PSS) (Cohen et al., 1983) was used; participants responded on a five-point scale (1= never and 5= very often) in describing how often they had experienced thoughts and emotions related to environmental stress during the previous month (e.g., "You could not cope with all the things that you had to do."). The extant literature indicates PSS demonstrates good internal consistency, a replicable factor structure and evidence of construct validity in the U.S. as well as other nations such as Europe, Mexico and the Russian Federation (e.g., Siqueira Reis et al., 2010).

COVID-19 Pandemic-Related Hardship

In order to provide a comprehensive picture of pandemic-related negative impacts and instability on families, survey questions explored the following dimensions: 1) access to childcare, 2) access to therapy and intervention for the child, 3) household financial stability and 4) overall physical health. Respondents were asked to indicate the level of disruptions in each domain by choosing one of four options (1= Not at all, 4= Great deal).

Predictors

Driven by the extant literature on family and young children, the analysis used these demographic variables as predictors; gender (1=female, 0=other gender identities) and immigration status (1= U.S. citizens, 0=not U.S. citizens), in addition to an ethnicity binary variable, Latinx (1=Latinx, 0= others).

Control Variables

Following the earlier work including the study on parental stress during the COVID-19 pandemic by Brown et al., (2020), researchers controlled the following variables: education attainment, household income, household size, number of children in the household during the pandemic, living with at least one child with special needs and losing one's job during the pandemic for performing multiple regression.

Analytic Strategies

First, researchers conducted the descriptive statistics and correlation to understand features of the key variables of this study; negative impacts on life experiences related to childrearing and basic needs (i.e., access to quality childcare, access to therapy and intervention for the child, household financial stability, overall physical health and life stress). Then, an analysis of variance (ANOVA) compared the mean differences in the broad dimension of the pandemic-related stressors. Before the regression analyses, the bivariate correlations between the study variables were examined. Finally, multiple linear regression analyses explored to what extent the variabilities would be statistically significant and furthermore, which pandemic-related negative impacts were exacerbated by the participants' demographic background; participants' gender, race/ethnicity and immigration status. All the above-mentioned analyses were conducted on SPSS Statistics version 26.

Results

Mean Comparison

Table 3 presents the results of descriptive statistics for the key variables and significance tests to show the mean-level differences of each of the predictor variables. The results reveal women were impacted harder by the pandemic and lockdown. The female participants report experiencing significantly higher disruptions in child therapy and intervention ($t(3,831) = 2.84, p < .01$), household financial stability ($t(3,856) = 2.82, p = .01$), physical health ($t(3,853) = 3.07, p < .01$) and stress level ($t(3,861) = 3.08, p < .001$), compared to their counterparts (male and the participants who declined to identify their gender).

Also, the preliminary analysis indicates differences among the participants' demographics such as ethnicity and immigration status. The Latinx participants report significantly higher disruptions in access to ECEC ($t(3,848) = 3.21, p < .001$), household financial stability ($t(3,849) = 2.74, p < .01$) and physical health ($t(3,846) = 3.50, p < .01$) as compared with the non-Latinx participants.

Finally, there were significant differences between U.S. citizens and other immigration statuses on two domains; the participants who were U.S. citizens report a lower level of disruption in household financial stability ($t(3,849) = -.66, p < .01$), but higher disruption on physical health ($t(3,846) = .44, p < .01$).

Correlation Analysis

Table 4 presents the correlation matrix for the key outcome variables and the selected demographic variables. Access to ECEC significantly correlates with access to child therapy/intervention ($r = .09, p < .001$), household financial stability ($r = .25, p < .001$), physical health ($r = .20, p < .001$), life stress ($r = .06, p < .001$), being Latinx ($r = .05, p < .001$) and being a U.S. citizen ($r = -.03, p < .05$). Lack of access to child therapy/intervention significantly associates with household financial stability ($r = .07, p < .001$), physical health ($r = .09, p < .001$), being female ($r = .05, p < .01$) and being Latinx ($r = .03, p < .05$).

Household financial stability represents significant associations with physical health ($r = .21, p < .001$), life stress ($r = .15, p < .001$), being female ($r = .04, p < .01$) and being Latinx ($r = .04, p < .01$). Overall, physical health significantly associates with life stress ($r = .20, p < .001$), being female ($r = .04, p < .01$) and being Latinx ($r = .06, p < .001$). Finally, life stress significantly associates with being female ($r = .05, p < .01$), being Latinx ($r = .06, p < .001$) and being a U.S. citizen ($r = -.05, p < .01$).

Regression Analysis

Table 5 presents the results from the multiple regression analyses with the six dependent variables: participants' access to ECEC, access to child therapy/intervention, impact on household financial stability, their physical health and life stress. All the models added control variables: educational attainment, household income, household size, the number of children in the household during the pandemic, living with at least one child with special needs and losing one's job during the pandemic.

These results indicate that after removing the effects of the control variables, there were significant variations in the degree of the pandemic-related negative effects on families with preschool-aged children in Northern California. First, female participants describe experiencing significantly higher disruptions in child therapy/intervention ($\beta = .05, p < .01$), household financial stability ($\beta = .04, p < .001$) and physical and mental health ($\beta = .05, p < .01$ and $\beta = .04, p < .001$, respectively), removing the effects of the control variables (table 5). There was no significant difference in the disruption in ECEC access between the female participants and others.

Second, after removing the effect of the control variables, Latinx parents describe significantly higher disruptions on both of the two childrearing related outcomes: access to ECEC ($\beta = .04, p < .01$) and child therapy/intervention ($\beta = .03, p < .05$) compared to the non-Latinx participants (table 5). They also report significantly more disruptions on household financial stability ($\beta = .04, p < .01$) and physical health ($\beta = .07, p < .001$) compared to their non-Latinx counterparts (table 5). There were no significant differences on life stress between the Latinx and non-Latinx participants.

Third, results show (table 5) a significant difference in ECEC access based on the participants' immigration status indicating the U.S. citizen participants report a significantly lower level of disruptions in access to ECEC ($\beta = -.05, p < .01$) and a lower level of life stress ($\beta = -.03, p < .05$) compared to the non-U.S. citizen participants, removing the effects of the control variables.

Discussion

After the onset of the pandemic, countries and regions across the world took numerous steps to contain the spread of the virus, including closing ECEC and early intervention programs and other family support agencies. The state of California was not an exception; the state-wide Shelter-in-place orders warranted closures of ECEC programs, decreased security in employment and residential arrangements, and diminished overall well-being of young children and their

families (Education Trust-West, 2021; Lee & Parolin, 2021; Tout, 2021). Smaller ECEC providers and center directors serving young children and families in underserved communities were particularly severely impacted, having to assume the burden of increased financial risk in order to keep their programs afloat (Kim et al., 2022). These economic and social costs of the pandemic remain damaging and enduring in the next generations (He et al., 2021).

Guided by earlier work and Family Systems Theory, this study assessed the impact of the COVID-19 pandemic and the subsequent ECEC closures on daily challenges of families with young children in Northern California. In particular, the associations between demographic factors and pandemic-induced impacts and their potential disparities based on demographic characteristics were explored. Using a comprehensive survey completed by 3,867 parents of preschool-aged children in Northern California at the beginning of 2021, the results demonstrate significant differences in negative impacts on female caregivers, parents with Latinx heritage and those who are foreign-born individuals, disproportionately impairing access to ECEC and intervention/therapeutic services for their children, as well as overall well-being, such as physical health, life stress and household financial stability.

First, female participants report they experienced more chronic disruptions in access to their children's therapy and intervention services, financial stability and both physical and mental health compared to their counterparts (male and the participants who declined to identify their gender), after removing the effects of control variables. This finding is consistent with a few extant studies on women with young children, indicating the pandemic represented prolonged gender inequity which imposes greater child-rearing responsibilities on women when compared with men, causing a significant risk for psychological distress among mothers of young children due to the inflexibility in their family-friendly working conditions and insecure employment arrangements (Hessami et al., 2020; Patrick et al., 2020; RAPID, 2022c; Yavorsky et al., 2021; Zamarro & Prados, 2021). To further augment this result, mounting evidence indicate the pandemic more severely impacted female caregivers with lower education attainment suggesting because they were more likely to work in sectors where remote work was not possible, as compared with their counterparts with higher educational attainment with greater access to distance work options and job security (Kochhar, 2020; Zamarro & Prados, 2021). Importantly, future analyses may investigate granular disparities within female caregivers across their socioeconomic characteristics.

Second, Latinx parents describe higher disruptions in access to ECEC services and therapy/intervention for their children and more disruptions in basic needs such as financial stability and physical health, compared with their non-Latinx counterparts when removing the effects of control variables. Aligned with earlier work, this finding contributes to the empirical evidence showing families of Latinx heritage and their children were more negatively impacted by pandemic-related disruptions and everyday hardships (Hawrilenko et al., 2021; Lee & Parolin, 2021). For instance, multiple studies with nationally representative data indicate post-pandemic poverty rates among Latinx children rose significantly more compared to the rates of their counterparts in other ethnic groups (Chen & Thomson, 2021). This trend could be due to the overrepresentation of adults of Latinx heritage in occupations and industries that were severely impacted by the pandemic, lower wages and limited access to governmental programs (Guzman & Chen, 2021). In Sonoma County, one of the Northern California regions included in

the current study, it was reported that three of every four infections countywide were in the Latinx population. One explanation for this finding is the greater likelihood that these families lacked physical space for quarantining alone (Espinoza, 2020). Along with this local data, current study findings illuminate layers of obstacles intersecting with lower income, lack of access to health care and inadequate, crowded housing conditions due to the high cost of living

Third, the current data describe how immigrant parents report higher disruptions in ECEC access and a higher level of life stress compared to their U.S. citizen counterparts (removing the effects of the control variables), highlighting unique challenges faced by this group. This finding is consistent with extant studies on mental health issues and COVID-19 stressors among immigrant adults with young children, indicating decline in mental health related to the pandemic is significantly higher in groups of foreign-born individuals and families with children, along with women and people of color (Clark et al., 2020; Falicov et al., 2020; Fortuna et al., 2020; Øverlien, 2020).

Increased disruptions in access to ECEC services could be partly due to long-term governmental underinvestment in smaller ECEC providers and centers without state contracts, when they were barely able to afford to continue to serve children, many of whom are children of color and from immigrant families (Fairlie, 2020; Furceri et al., 2022; Perry et al., 2021). Although the federal and state pandemic relief (e.g., California's CARES funding: Coronavirus Aid, Relief, and Economic Recovery [CARES] Act) offered some short-term aid to smaller ECEC providers (i.e., family childcare providers and unsubsidized programs, these programs still experienced greater financial and operational hardships, such as decreased enrollment, reduced income and higher costs, often being forced to pull from their reserves or rely on private donation or fundraising (Bergey et al., 2020; Kim et al., 2022; Stavelly, 2020).

Mounting evidence suggests inadequate access to ECEC often transitions parents into heart-wrenching, difficult predicaments. They are often forced to choose between coping with financial damage due to job loss and struggling to secure a rare childcare spot (Gelber & Isen, 2013; Gershoff, 2002; Mauno et al., 2017; Yamaguchi et al., 2018). The situation is even more complex for non-U.S. citizens, including legal permanent residents, refugees and temporary visa holders, who do not have eligibility to an array of governmental support due to their immigration status (Clark et al., 2020; Falicov et al., 2020; Guruge et al., 2021; Kochhar, 2020; Øverlien, 2020). The U.S. anti-poverty programs, including the Earned Income Tax Credit and Medicaid, are effective to alleviate challenges that children in poverty and their families face. Yet, those programs are inherently excluding vulnerable populations, because they tend to have immigration restrictions that strictly limit public assistance to non-U.S. citizens (Guzman & Chen, 2021). The Migration Policy Institute shows a significant access gap, indicating immigrant households are less likely to be eligible to much of the governmental support than U.S. born families even within the same income range, due to federal restrictions on lawfully present noncitizens' access to some programs like federally funded Supplemental Nutrition Assistance Program (SNAP) (i.e., food stamps) (Lacarte et al., 2023). Given looming impacts of the pandemic on adversity faced by immigrant households and their children for years to come, much effort is sought to implement anti-poverty assistance programs and mental health services that are inclusive of immigrant communities.

Limitations and Future Research

Although this current study illuminates the COVID-19 pandemic exacerbated some of the prolonged, structural inequities existing in the United States, the results should be interpreted in the context of certain limitations. First, because the data utilized in this study is an online survey with self-reports, it is important to consider biases, especially the possibility that parents' emotional states can influence their assessment of the hardships that this study examined. To avoid such conflation, use of data triangulation may benefit future analyses by gathering information from both parents and from their children (Singletary et al., 2022).

Second, this study is cross-sectional, utilizing the data the authors collected on concurrent reports of family experiences at one time point rather than longitudinally. Thus, as researchers, we are unable to make causal inferences or identify the sequence of the relationships between family demographics, challenges related to their children's educational experiences and the parents' overall well-being. Further longitudinal research is warranted to understand causal relationships.

Despite these limitations, the current data demonstrate that sociodemographic characteristics such as gender, ethnicity and immigration status contribute to disparities in the self-reported impact of the COVID-19 pandemic, especially with respect to access to ECEC, therapy/early intervention for their children and family well-being, such as physical health, life stress and household financial stability, adding complexities to prolonged inequities faced by those populations. The current data also provide direction for discussions of public investment, which critically include consideration of the disproportionate burden of hardships and limited access to governmental programs (e.g., anti-poverty programs, mental health services and smaller ECEC programs such as family childcare homes) borne by children and their families in systematically disadvantaged communities (Fortuna et al., 2020; Kerker et al., 2023).

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Appendices

Table 1. Descriptive Statistics of Demographic Information

Variable	Category	Number	Percentage
Gender	Male	1,919	49.7%
	Female	1,940	50.2%
	Nonbinary	5	.1%
	Prefer not to Answer	1	.0%
Race	White	2,087	54.1%
	Black or African American	555	14.4%
	American Indian or Alaska Native	598	15.5%
	Asian or Asian American	326	8.4%
	Latinx	253	6.6%
	Multiracial/ multiethnic	5	.1%
	Pacific Islander	34	.9%
U.S. Citizen		3,426	88.8%
Educational Attainment	12th grade or less	36	.9%
	High School or Equivalent	363	9.4%
	Associate Degree (2- year college)	534	13.8%
	Vocational Degree	720	18.7%
	Bachelor's Degree (4- year university)	1,930	50.0%
	Graduate Degree (Masters, Ph.D., JD, MD, etc.)	275	7.1%
Household Income	Below \$75,000 (CA median HH income)	2,189	56.6%
	Above \$75,000	1,677	43.4%
Household Size	2	116	3.0%
	3	2,111	54.6%
	4	836	21.6%
	5	477	12.3%
	6	198	5.1%
	7 and beyond	129	3.3%

Number of Children in the Household during the Pandemic	1	3.022	78.2%
	2	619	16.0%
	3	145	3.8%
	4	57	1.5%
	5 and beyond	23	.7%
Live with Child(ren) with Special Needs	Yes	1,726	44.6%
Lost Job during the Pandemic		1,179	30.7%

Note: Numbers and parentheses indicate, respectively, means and standard deviations for continuous variables and counts and percentages for categorical/binary variables. Due to some missing values, some counts do not add up to the total sample size.

Table 2. Summary of Measures

Variable	Measures	Number of Items	Note
Life stress	Perceived Stress Scale (5-point)	10	Reference: Cohen et al., 1983
Pandemic-related negative impacts and instability on families	Self-developed rating scale (4-point)	5	Dimension explored: • access to ECEC • access to therapy and intervention for the child • impact on household financial stability • impact on overall physical health
Predictors	Self-developed	3	Dimension explored: • gender (1=female, 0=other gender identities) • immigration status (1= U.S. citizens, 0=not U.S. citizens) • race/ethnicity (1=Latinx, 0= others).

Control variables	Self-developed	6	Dimension explored: • educational attainment • household income • household size • number of children in the household during the pandemic • living with at least one child with special needs • losing one's job during the pandemic
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Table 3. Sample Descriptive Using t-test for Equality of Means on Key Variables

Variables		<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Negative Impact on ECEC Access	Female	1,937	2.59	.83	.64	.219
	Others	1,920	2.57	.80		
	Latinx	253	2.74	.73	3.21	.000***
	Other Ethnic Groups	3,597	2.57	.82		
	U.S. Citizens	3,423	2.57	.82	-	.138
	Other Immigration Status	427	2.65	.80	1.94	
Negative Impact on Access to Therapy & Intervention for the Child	Female	1,920	2.59	.88	2.84	.003**
	Others	1,913	2.50	.93		
	Latinx	251	2.67	.90	2.14	.605
	Other Ethnic Groups	3,575	2.54	.91		
	U.S. Citizens	3,399	2.55	.90	.77	.123
	Other Immigration Status	427	2.52	.94		
Negative Impact on Household Financial Stability	Female	1,936	2.62	.76	2.82	.01**
	Others	1,922	2.55	.79		
	Latinx	253	2.71	.71	2.74	.004**
	Other Ethnic Groups	3,598	2.57	.78		
	U.S. Citizens	3,420	2.58	.78	-.66	.003**
	Other Immigration Status	431	2.61	.71		
Negative Impact on Overall Physical Health	Female	1,936	2.59	.78	3.07	.002**
	Others	1,919	2.51	.82		

Life Stress	Latinx	253	2.72	.73	3.50	.002**
	Other Ethnic Groups	3,595	2.54	.81		
	U.S. Citizens	3,417	2.55	.81	.44	.007**
	Other Immigration Status	431	2.53	.74		
	Female	1,938	2.94	.34	3.08	.000***
	Others	1,925	2.91	.37		
	Latinx	253	2.92	.33	-.05	.563
	Other Ethnic Groups	3,603	2.93	.36		
	U.S. Citizens	3,425	2.92	.36	-	.181
	Other Immigration Status	431	2.98	.33	3.18	

* $p < .05$. ** $p < .01$. *** $p < .001$

Table 4. Correlations among Major Variables

Variables	1	2	3	4	5	6	7	8
1. Negative Impact on ECEC Access	--							
2. Negative Impact on Access to Therapy & Intervention Service for the Child	.09***	--						
3. Negative Impact on household financial stability	.25***	.07***	--					
4. Negative Impact on overall Physical Health	.20***	.09***	.21***	--				
5. Life Stress	.06***	.01	.15***	.20***	--			
6. Participant Gender (1= Female)	.007	.05**	.04**	.05**	.05**	--		

7.	Race (1= Latinx)	.05***	.03*	.04**	.06***	.06***	-	--
							.002	
8.	U.S. Citizen	-.03*	.01	-.01	.008	-.05**	.01	-
								.04**

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 5. Regression Results

	Model 1	Model 2	Model 2	Model 4	Model 5
	Negative Impact on ECEC Access	Negative Impact on access to Therapy & intervention for the child	Negative Impact on household financial stability	Negative Impact on Overall Physical Health	Life Stress
Predictors	β	β	β	β	β
Gender (1= Female; 0= Other gender identities)	.01	.05**	.04***	.05**	.04***
Race (1= Latinx; 0= Other race/ethnic groups)	.04**	.03*	.04**	.07***	-.01
U.S. Citizen (1= U.S. Citizen; 0= Other immigration status)	-.05**	-.004	-.02	-.003	-.03*
Adjusted R²	.02	.02	.01	.02	.02

* $p < .05$. ** $p < .01$. *** $p < .001$.