

RESEARCH ARTICLE

Transitions to virtual early childhood home visitation during COVID-19

Dorian Traube¹  | Sharlene Gozalians² | Lei Duan¹

¹ USC Dworak-Peck School of Social Work, Los Angeles, California, USA

² Los Angeles Best Babies Network at Dignity Health California Hospital Medical Center, Los Angeles, California, USA

Correspondence

Dorian Traube, USC Dworak-Peck School of Social Work, 669 W 34th Street, Los Angeles, CA 90089-0411, USA
Email: traube@usc.edu

Human Subjects: All study procedures were reviewed and approved by the University of Southern California Institutional Review Board (UP-IRB-16-00089).

Funding information

1st 5 Los Angeles

Abstract

COVID-19 has disrupted many of the preventive service sectors designed to promote infant mental health. The purpose of this study is to examine provider and supervisor transition strategies as well as maternal-child outcomes during the transition from in-person to virtual early childhood home visitation services in Los Angeles County. Los Angeles County is one of the largest home visitation sectors in the U.S. and disproportionately impacted by the COVID-19 pandemic. Transitioning from in-person to virtual home visitation was an important step in ensuring the continuity of infant mental health services. Home visitors reported relative ease in transitioning to virtual services themselves but noted that families encountered greater difficulty. The most helpful strategies to support this transition included training, ongoing reflective supervision, and provision of technology. Family level analysis revealed that positive screening rates for anxiety and depression decreased during the pandemic as did referrals for most support services. These findings likely highlight challenges in delivering virtual home visitation. Understanding how transitions in a key infant serving sector were managed serves an important role in forecasting for the future and preparing for future public health emergencies.

KEYWORDS

COVID-19, family needs, home visitation, parental mental health, virtual home visitation

High-quality home visitation services for infants and young children show evidence of improving parent-child interactions and relationships, maternal mental health outcomes, and reducing child maltreatment (Duffee et al., 2017; Filene et al., 2013). These positive outcomes of home visitation can buffer vulnerable families against perinatal mental health risk and subsequent adverse childhood experiences (Shonkoff, 2016).

Large-scale social distancing measures launched by states and counties in the United States to combat the transmission of COVID-19 meant home visitors could no longer visit families in their homes, leaving high-risk mothers at even greater risk for pre-natal and post-partum

mental health complications, parenting difficulties, and social isolation. To avoid gaps in services, there was an immediate industry wide shift to “virtual home visitation” (VHV), via telehealth service delivery platforms.

Los Angeles County represents one of the largest home visitation service sectors in the United States with 35,000 families served annually and is also a city with one of the highest COVID-19 case rates (Centers for Disease Control and Prevention, 2020). Few studies exist on the transition to virtual early childhood home visitation during the COVID-19 pandemic. Data from Los Angeles County’s transition is an important metric for the field given the scope of families served as well as the impact of the

pandemic on the county. In this study, we utilize cross-sectional, self-reported data from the Los Angeles County Perinatal and Early Childhood Home Visitation Consortium to examine home visitor and supervisor transition strategies to virtual home visitation during COVID-19. We also utilize 3 years of Los Angeles County home visitation administrative data to explore differences in mental health screening and resource referrals among families receiving home visitation services prior to and after the onset of the COVID-19 pandemic. The impact of COVID-19 on the home visitation sector has important and far-reaching implications for the field of infant mental health and child development as it is a principle service sector in the early childhood continuum. Lessons learned during the COVID-19 pandemic can inform solutions to increasing access to early childhood home visitation outside of emergency situations.

1 | INTRODUCTION

1.1 | Early childhood home visitation

Home visitation programs are a vital public safety net program for infants and their families. Prior to the COVID-19 pandemic, families received early childhood home visitation services consisting of screening, case management, family support, and caregiver skills training to promote positive parenting, child school readiness, good maternal and child health, safety, and nutrition (Lanier et al., 2015; National Home Visiting Resource Center, 2021). High-quality home visitation services for infants and young children show evidence of improving parent-child interactions and relationships, maternal-infant health outcomes, child school readiness, family economic self-sufficiency, and reducing child maltreatment (Duffee et al., 2017; Filene et al., 2013). These positive outcomes of home visitation can buffer vulnerable families against early childhood risk factors and adverse childhood experiences (Shonkoff, 2016) that can negatively influence lifelong health, relationships (Madigan et al., 2016), and parenting (Chung et al., 2009; Duffee et al., 2017; Madigan et al., 2016; Szilagyi et al., 2015). Most home visitation programs are targeted to infants and young children of mothers considered high-risk for the aforementioned childhood risk and adverse childhood experiences because they have an income below the federal threshold, are under 21 years old, parenting alone, or without a high school education. National estimates indicate that 51% of home visitation participants meet at least one high risk category and 21% meet two or more high risk criteria. Significant federal investment in home visitation has occurred through HRSA/ACF's Maternal, Infant, and Early Childhood Home Visitation Program (MIECHV) because these program models have improved

KEY FINDINGS

1. Home visitor and supervisor transition to virtual home visitation required additional supports related to funding, technology, supervision, and model guidance.
2. Supervisor felt that home visitors struggled more with the transition to virtual home visitation than home visitors felt that they did, while home visitors felt that families struggled more with engagement than supervisors felt families did.
3. Detection of maternal depression and anxiety as well as referrals for family resources decreased during the COVID-19 pandemic indicating that protocols for virtual home visitation may need further refinement.

STATEMENT OF RELEVANCE

The impact of COVID-19 on the home visitation sector has far reaching implications for the field of infant mental health and child development as it is a principle service sector in the early childhood continuum. Few studies exist on the transition to virtual home visitation during the COVID-19 pandemic. Los Angeles county's transition is an important metric for the field given the scope of families served and impact of the pandemic on the county.

the long-term health and well-being of mothers and children (National Home Visiting Resource Center, 2021).

Home visiting is a service delivery strategy that connects expectant parents and parents of young children with a designated support person—typically a trained nurse, social worker, or early childhood specialist. Home visitors: (1) gather information to tailor services, such as screening parents for postpartum depression, substance abuse, and domestic violence or screening children for developmental delays; (2) provide direct education and support to make homes safer, promote safe sleep practices, and inform participants about child development; and (3) make referrals and coordinate services such as prenatal care, well-child visits, job training and education programs and if needed,

mental health or domestic violence resources (National Home Visiting Resource Center, 2021). All home visitation models center themselves around the premise that the provision of home visitation services to families must begin with a focus on identifying the needs of the family system and ensuring that intervention is tailored to address those needs in order to promote infant mental health.

1.2 | The role of home visitation in maternal and infant mental health

Robust meta-analytic support exists for the associations between early parent–child attachments and a range of outcomes across childhood, adolescence, and adulthood (Tesson et al., 2021), including internalizing and externalizing behaviors (e.g., anxiety, depression, aggression; Madigan et al., 2016; Spruit et al., 2020), neurodevelopmental, self-regulatory, and attentional capacities (Pallini et al., 2018, 2019), social emotional development and peer relations (Cooke et al., 2016), as well as physical health (Ranson & Urichuk, 2008). As previously noted, home visitors use a variety of infant mental health intervention strategies to support the development of the infant within the context of nurturing relationships, to reduce the risk of developmental delays or relationship disturbances or disorders of infancy, and to enhance parental caregiving capacities. These strategies are individualized depending on the unique needs of each infant and family. Each strategy supports the early developing attachment relationship between parent and child and includes the following: building an alliance or working relationship, providing for material needs, offering emotional support, providing developmental guidance, and developing life coping skills and social support (Shapiro, 2007; Weatherston et al., 2020).

Home visitation also plays a key role in the promotion of maternal mental health and the detection and intervention of post-partum depression (National Home Visiting Resource Center, 2021). The primary home visitation funder, the Maternal, Infant, and Early Childhood Home Visiting Program (MIECHV), has identified maternal mental health as a benchmark outcome. Home visitation programs have increasingly integrated depression screening into standard operating procedures (Tandon et al., 2018). Rates of major depressive disorder among women in home visitation programs are estimated to be about 15% (Ammerman et al., 2010) while rates of subthreshold depressive symptoms have been found among 45%–50% of HV clients (Ammerman et al., 2009; Duggan et al., 2007). There are no recent population-based studies of rates of postpartum anxiety among women enrolled in home visitation. National estimates indicate that 11%–21% of new

mothers qualify for an anxiety disorder diagnosis (Bhat et al., 2021). Once screened and identified as having mental health need, home visitors generally refer to a mental health provider for intervention (Tandon et al., 2018).

1.3 | COVID-19's impact on early childhood home visitation in Los Angeles

Los Angeles County is the most populous non-state-level government entity in the United States. Its population is greater than that of 41 individual U.S. states and is geographically larger than the combined areas of Delaware and Rhode Island. The county is home to more than one-quarter of California residents and is one of the most ethnically diverse counties in the United States (US Census Bureau, 2021). According to the 2010 Census, the racial makeup of Los Angeles included: 1,888,158 Whites (49.8%), 365,118 African Americans (9.6%), 28,215 Native Americans (0.7%), 426,959 Asians (11.3%), 5,577 Pacific Islanders (0.1%), 902,959 from other races (23.8%), and 175,635 (4.6%) from two or more races. Hispanics or Latinos of any race were 1,838,822 persons (48.5%) (US Census Bureau, 2021). The highest rates of poverty in the county are among Hispanic (18%) and Black (21%) community members (US Census Bureau, 2021).

In Los Angeles County, the COVID-19 pandemic has had a disproportionate impact on Black, Indigenous, and Latinx residents. Many are public transit-dependent, living in over-crowded housing far from supermarkets and other essential businesses; thereby, less able to safely shelter or forgo a paycheck (Race Counts, 2021). On top of increased exposure, they have also suffered disparate mortality rates, often due to overlapping vulnerabilities created by generations of disinvestment from public health infrastructure and other structural inequities. Housing segregation and the legacy of redlining means more Californians of color live in denser, multi-generational households where infection can spread more easily; a less-healthy built environment starves low-income people of color of access to safe places to recreate and exercise or to buy healthy food; racialized criminal justice systems disproportionately put Latinx and especially Black residents at high risk of infection in jails and prisons; and the epidemic of homelessness that has overtaken Los Angeles means many people of color have no place to go for shelter from the virus (Race Counts, 2021).

The public health measures to mitigate the spread of the COVID-19 pandemic (i.e., social distancing, isolation) have disrupted ecological systems in which children develop. Childcare and school closures, erosion of family and community connections and supports, and interruptions in social services diminish support systems for children and

families (Baron et al., 2020; Cuartas, 2020). At the same time, heightened contextual stressors, including uncertainty about the future and economic vulnerability caused by the pandemic, have negative social and emotional consequences for families. Single parent households, in particular, are losing jobs, income and health insurance at higher rates than other households with children (Armantier et al., 2020). The erosion of support systems and exposure to multiple contextual stressors increases threats for the safety and parental supervision of children and exacerbates children's risk of child maltreatment (Cicchetti et al., 2000). Evidence indicates that rates of maltreatment and infant mental health difficulty increased rapidly following prior emergencies and pandemics (Peterman et al., 2020; Seddighi et al., 2019). The COVID-19 pandemic has resulted in significant increases in parental burden, likely increasing risk for parental stress and burnout.

The COVID-19 pandemic raises concerns about which families home visiting programs are reaching and how well they are meeting families' evolving needs during this time. Large-scale social distancing measures launched by states and counties to combat the transmission of COVID-19 meant home visitors could no longer visit families in their homes, leaving high-risk families at even greater risk for pre-natal and post-partum health complications, infant mental health, health and development difficulties, parenting difficulties, and social isolation. COVID-19 is most profoundly affecting at-risk families because of the potential loss of an effective service (home visitation) that many were receiving.

1.4 | Home visitation adaptations due to COVID-19

The COVID-19 pandemic forced a system-wide shift to "virtual home visitation" (VHV) service delivery. At that time, most home visitation programs had not created large-scale investment and development of virtual service delivery of home visitation, though small-scale studies of home visitation by telehealth had shown some success (Hinton et al., 2017; Traube et al., 2020a, 2020b). In addition, prior to COVID-19, no VHV services were reimbursed through federal MIECHV funds. Yet, telehealth delivery systems are an important tool to address participation and engagement (Guastaferrero et al., 2020) in home visitation programs, especially during COVID-19, and perhaps after as well. The current generation of parents has a high level of comfort with digital technology, and telemedicine is already being used to provide access to services to hard-to-reach parents to address urgent medical and behavioral health needs (Feil et al., 2008; McGinty et al., 2006; Nieuwboer et al., 2013; Tan & Lai, 2007), including support-

ing low-birth-weight newborns (Tan & Lai, 2007), occupational therapy, and children's psychiatric care (McGinty et al., 2006). Additionally, research on computer-mediated interventions has shown promising results (McGinty et al., 2006; Tan & Lai, 2007), with digitally mediated interventions being viable, engaging and efficacious (Flujas-Contreras et al., 2019). Early intervention services within IDEA Part C have also been deployed via telemedicine and providers and recipients have noted benefits including flexibility, access to providers, and more family engagement (Cole et al., 2019).

When social distancing measures were enacted nationwide, the entire home visitation industry moved to remote delivery options. Depending on family and provider resources, programs began offering VHV services by phone or by interactive videoconferencing. However, to date, there is no clear understanding of how home visitors navigated the transition to VHV or how families engaged in home visitation were impacted during the COVID-19 pandemic.

1.5 | Outcomes of home visitation adaptations to COVID-19

Preliminary research on the impact of the COVID-19 pandemic on home visiting shows that there are significant barriers for staff in providing telehealth services and that families present with a significant number and range of needs (Rapid Response Virtual Home Visitation, 2020). However, relatively little has been documented about the outcomes of the rapid shift to VHV in response to COVID-19. Results from a recent survey of SafeCare home visitors reported that some families were more difficult to engage in virtual sessions and that there were several challenges for families, including insufficient data plans that impeded the use of smart devices (Self-Brown et al., 2020). Additionally, a qualitative study of federally funded home visiting programs in Florida found that programs were managing effectively and maintaining a sense of confidence and optimism, aided by family engagement and support from federal agencies (Marshall et al., 2020). Home visitors reported that families were experiencing unique needs due to the pandemic, including financial assistance, parenting support, accessible mental health services, transportation, and housing. Home visitors also reported providing a range of services for families, including resources and supplies, education, and support (Marshall et al., 2020). Marshall et al. (2020) noted that virtual platforms allowed continuation of communication with the families to assure needed resources, including supplies, health information, mental health services, and referral to other programs were provided. The only national survey of home visitors during

COVID-19 found that home visitors report challenges with families' technical resources, issues of confidentiality, visitors' home environment, families' emotional capacity to engage in visits, program fidelity, and distributing materials to families (O'Neil et al., 2020). While all of these studies provide important information about home visitors' experiences during this transition, little is known about the outcomes for families during this transition.

1.6 | The current study

The current study seeks to add to the growing body of evidence around the home visitation sectors shift to VHV during the COVID-19 pandemic. Utilizing data from the Los Angeles County Perinatal and Early Childhood Home Visitation Consortium, we examine home visitor and supervisor experiences as well as maternal-child outcomes during the transition from in-person to virtual early childhood home visitation services in Los Angeles County. The Los Angeles County Perinatal and Early Childhood Home Visitation Consortium is a network of over 50 perinatal and early childhood home visitation programs, maternal and child health organizations, advocacy groups, and stakeholders. They work to support Los Angeles County's home visitation programs by sharing training and educational resources, researching best practice standards, supporting enhanced referral systems between programs, conducting research and collecting data on home visiting outcomes, and advocating for systems and policies that recognize the tremendous value of home visitation services. For this study, factors explored include home visitor and supervisor transition supports and strategies, rates of maternal depression and anxiety, and follow-up referrals among families receiving early childhood home visitation services prior to and after the onset of the COVID-19 pandemic risk.

2 | METHODS

2.1 | Study sample

Cross-sectional, self-reported survey data from 171 home visitors and 75 supervisors was collected in November 2020 through convenience sampling to assess experiences of transitioning to virtual home visitation during the COVID-19 pandemic. Home visitor and supervisor data was supplemented with administrative data from Los Angeles County for fiscal years 2018 ($n = 14,834$), 2019 ($n = 15,440$), and 2020 ($n = 10,477$) to determine the impact of the COVID-19 pandemic on maternal mental health and service referrals. In Los Angeles County, the vast majority of mothers and children engaged in home visitation services are peo-

ple of color with financial needs. This is primarily driven by policy decisions to prioritize low-income mothers into home visitation. The majority of families served are Hispanic (71.3%) followed by Black families (18.8%), Caucasian (3.9%), Mixed race (2.7%), Asian (1.7%), and unidentified (1.6%). Only 9% of mothers were younger than 19 years of age, 25% are aged 20–25, 28% are aged 25–29, and 22% are 30–34 years old. Sixteen percent of mothers were older than 35 years. Eighty-three percent of families in home visitation qualify for the Women Infant Child (WIC) program, and 7% were experiencing housing insecurity. Study procedures were approved by the University of Southern California Institutional Review Board.

2.2 | Study measures

2.2.1 | Home visitors survey

All members of the Los Angeles County Perinatal and Early Home Visitation Consortium received an email invitation to participate in an online survey about their experiences transitioning to VHV during the COVID-19 pandemic. Respondents were informed of the purpose of the survey, risks and benefits of participating and how data would be utilized at the beginning of the survey. They were informed that completing the survey was considered consenting to all study procedures. The home visitors online survey consisted of 23 multiple choice and open-ended questions about the home visitor's demographics (six questions), experience transitioning to VHV (four questions), resources needed to support the transition (five questions), challenges faced in making the transition to VHV (3), technological needs (2), and protocol changes (5). Sample questions include: "How confident do you feel in your ability to engage families in virtual home visitation? (Not confident, somewhat confident, developing confidence, mostly confident, I am an engagement rock star!"). For the purpose of this study, only data from the multiple-choice questions will be discussed. Questions were developed by the data collection workgroup within the Los Angeles County Perinatal and Early Home Visitation Consortium.

2.2.2 | Supervisor survey

Following the same sampling and consent procedures as the home visitors, supervisors completed a 22-item survey consisting of multiple choice and open-ended questions about demographics (five questions), experience transitioning to VHV (four questions), resources needed to support the transition (three questions), challenges faced in making the transition to VHV (4), technological needs (3),

and protocol changes (3). Sample questions include, “How difficult was it for your staff to transition to virtual home visitation? (Not at all difficult, somewhat difficult, moderately difficult, extremely difficult, we are still transitioning).” For the purpose of this study, only data from the multiple-choice questions will be discussed.

2.2.3 | Maternal level data

For the purpose of this study, we examined changes in identification of anxiety and depression and service referrals for mothers who participated in home visitation during the periods of 2018, 2019, and 2020. Administrative data collected through the Los Angeles County Perinatal and Early Home Visitation Consortium was utilized for this portion of the study. All mothers receiving home visitation services in Los Angeles County consented to have their family level data utilized for continuous quality improvement and research.

2.2.4 | Maternal mental health

Information regarding maternal depression was drawn from the scores on the Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001). Per developer instructions, maternal depressive symptoms were categorized using a score of 10 or higher. Maternal anxiety was assessed with the Generalized Anxiety Disorder Assessment (GAD-7; Spitzer et al., 2006). Based on the assessment instructions, maternal anxiety symptoms were categorized using a score of 10 or higher.

2.2.5 | Service referrals

Service referrals were assessed via a sum score of the number of referrals to resources families received for basic needs (e.g., food, diapers, etc.), healthcare, mental health care, nutrition, parent education, benefits services, family recreation, legal services, developmental assessments, education and employment, crisis intervention, and substance use in 2018, 2019, and 2020.

2.3 | Statistical analysis

All statistical analyses were conducted in SPSS 25.0. First, we completed univariate analysis on responses from home visitors and supervisors about their experience transitioning to VHV. Second, we calculated the number of mothers who met the clinical cut-off for probable depression or

anxiety on either the PHQ-9 or GAD-7. Third, we examined whether there were statistically significant differences in the rates of maternal depression and anxiety pre and post pandemic-onset using Chi-square (χ^2) tests of independence. Lastly, we examined differences in associations between referral for support services in each period using Chi-square (χ^2) tests of independence.

3 | RESULTS

3.1 | Home visitors

Prior to the onset of the pandemic, the majority of home visitors (67%) had been working as home visitors for less than 2 years. Only 19% of home visitors had been working as home visitors for more than 5 years. The vast majority of home visitors also reported making the transition to virtual home visitation in March 2020 (70%) and April 2020 (16%). In making the transition to VHV, 92% of home visitors reported receiving support to do so from their home visitation organization. Home visitors represented models including Health Families America (40%), Parents as Teachers (25%), Welcome Baby (15%), Mama’s Neighborhood (9%), Early Head Start (5%), Partnership for Families (3%), Nurse Family Partnership (2%), and Healthy Start (1%).

3.2 | Supervisors

Supervisors represented models including Health Families America (39%), Parents as Teachers (19%), Welcome Baby (20%), Mama’s Neighborhood (8%), Early Head Start (5%), Partnership for Families (3%), Nurse Family Partnership (1%), and Healthy Start (8%). To support their staff in the transition to VHV, 76% of supervisors offered flexible schedules, 77% offered training and webinars to their team, 67% created COVID-19 resource lists that included prevention and testing information, 81% reported offering mental health support, 63% provided staff with computers, and 68% needed to provide staff with internet connectivity. Supervisors also reported that they were allowed to submit for funding for cellphones (40%), internet (27%), technology subscriptions (17%), computers (15%), and web cameras (12%).

When asked about the supports needed to transition to VHV, both home visitors and supervisors reported a high level of need for training on how to create a positive virtual meeting environment, complete assessments, support parent child interaction as well as access to technology (see Figure 1). Home visitors also relied heavily on supervision (66%) and peer support (48%) while in making the

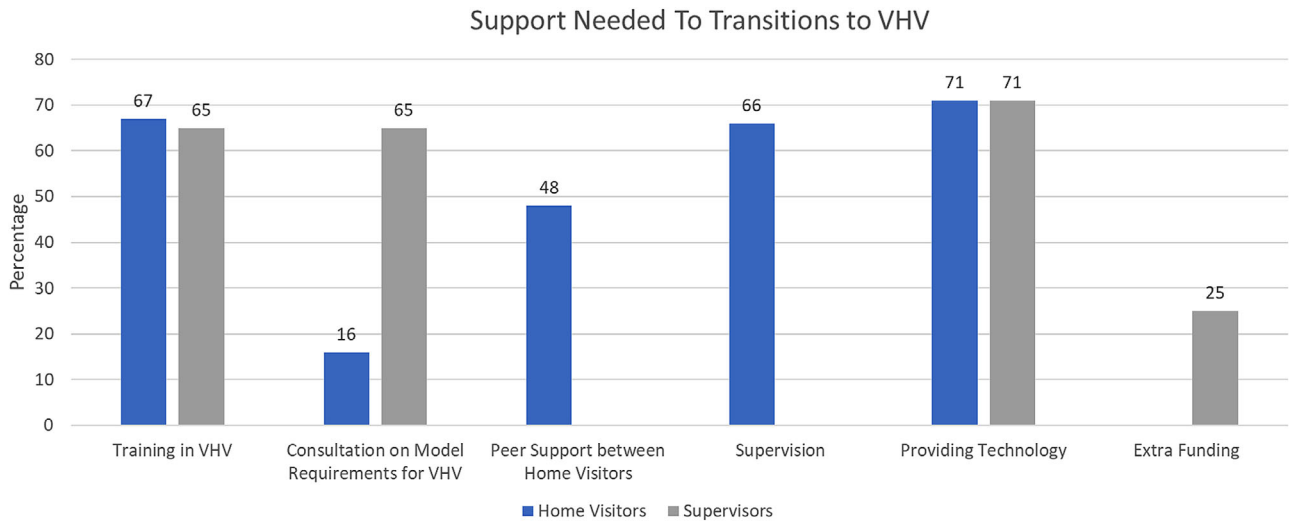


FIGURE 1 Support needed to transitions to VHV

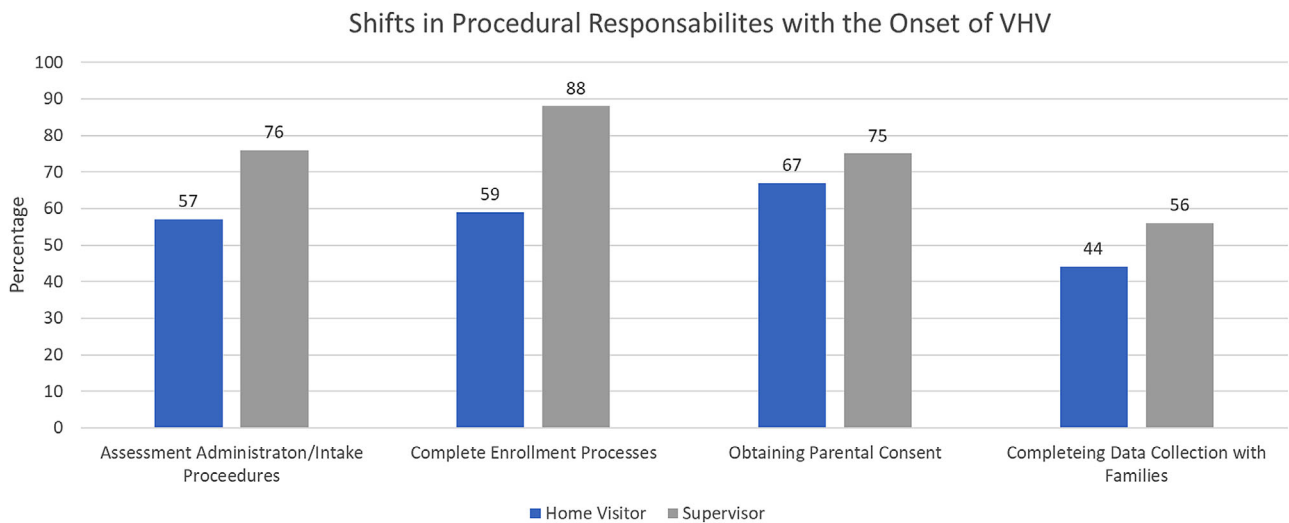


FIGURE 2 Shifts in procedural responsibilities with the onset of VHV

transition to VHV, while supervisors noted needing model and funder consultation (75%) and extra programmatic funding to support purchase and distribution of supplies and technology (25%). Both home visitors and supervisors noted that they had to change protocols for assessment and intake, enrollment, consent, and data collection. In all areas, supervisors reported having to enact more procedural changes related to recruitment and enrollment than home visitors (See Figure 2). Percentage comparisons of responses showed that the majority of supervisors felt that the transition to VHV was moderately difficult for their staff (61%), while home visitors rated the transition as moderately (36%) or somewhat difficult (31%) for themselves (See Figure 3). Finally, in assessing the engagement level of families in VHV, supervisors felt families were moderately (42%) or mostly (47%) engaged versus home visitors

who found that only 34% of families were moderately and 34% of families were mostly engaged (See Figure 4).

3.3 | Mothers and children

In the area of maternal mental health, 31% of mothers enrolling in home visiting in 2018 and 27% in 2019 (the pre-pandemic period) met criteria for depression on PHQ-9, whereas only 25% of enrollees met criteria during the pandemic. This is a statistically significant difference ($p < .001$), see Table 1. Statistically significant differences in moderate to high anxiety symptoms were also detected. In 2018, 11% of mothers met the criteria for anxiety and this declined to 9% during the pandemic. No statistically significant difference by race or ethnicity were detected.

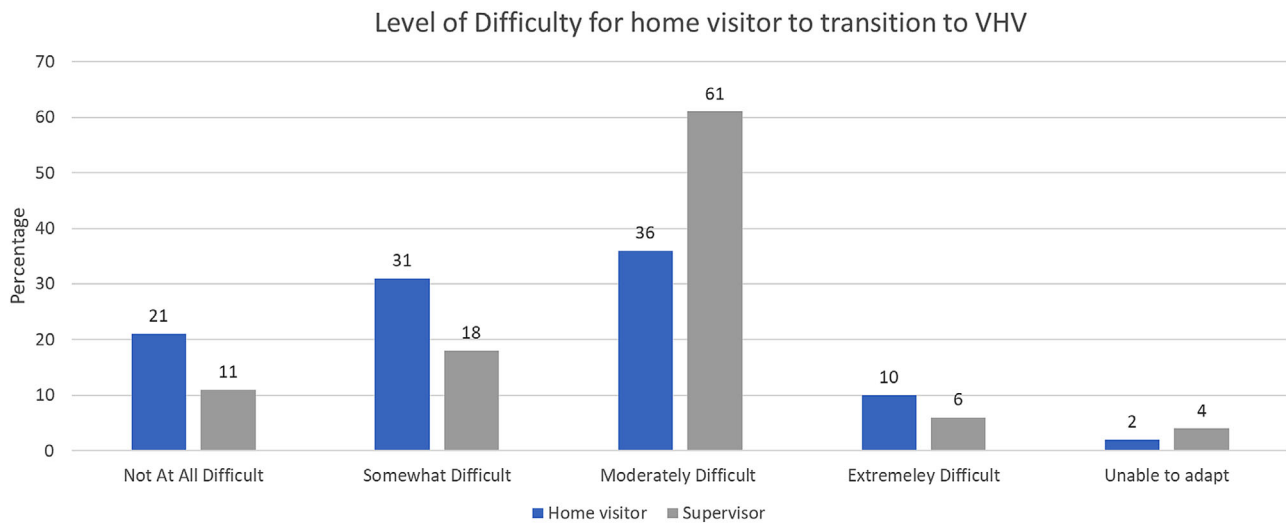


FIGURE 3 Level of difficulty for home visitor to transition to VHV

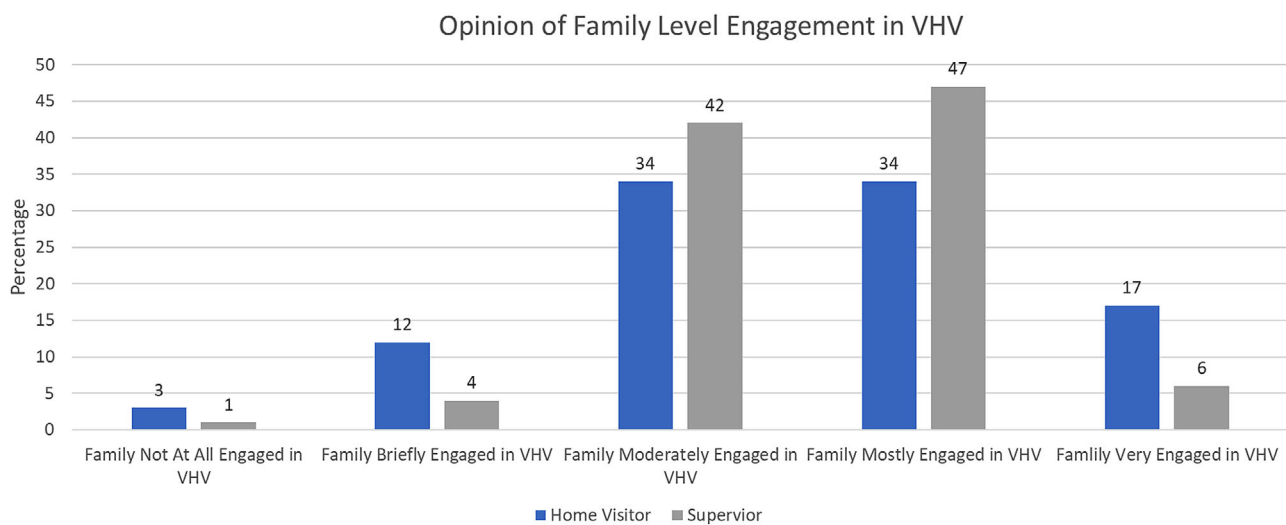


FIGURE 4 Opinion of family level engagement in VHV

TABLE 1 Comparison of maternal depression and anxiety rates in the pre and post-pandemic periods ($n = 6792$)

	Year			X^2 p value
	2018 ($n = 14,834$)	2019 ($n = 15,632$)	2020 ($n = 10,447$)	
Patient health questionnaire-9 (PHQ 9)	1694 (30.97%)	1859 (27.44%)	1022 (25.56%)	<.001
Generalized anxiety disorder –7 scale (GAD 7)	1334 (10.09%)	1301 (9.15%)	641 (8.78%)	.01

Note: The pre-pandemic period was defined as 2018 and 2019. The post-pandemic period was defined as 2020. Moderate depressive symptoms were defined as ≥ 10 on the Patient Health Questionnaire- 9 (PHQ-9) and moderate anxiety symptoms were defined as ≥ 10 on the Generalized Anxiety Disorder 7 Scale (GAD 7).

Statistically significant differences in referral to support services were also detected in the areas of basic needs (e.g., food, diapers, etc.), healthcare, mental health care, nutrition, parent education, family recreation, legal services, developmental assessments, education and employment, and substance use. See Table 2. There was an increase in

referrals for basic needs, mental health care, and nutrition support in 2020, at the height of the COVID-19 pandemic. There was a decrease in all other referral areas during 2020. The only areas where there was not a statistical difference detected pre and post pandemic were benefits services and crisis intervention.

TABLE 2 Comparison of resource connection referrals made by PAT home visitors for families enrolled before and during the pandemic

	Year			<i>X</i> ² <i>p</i> value
	2018 (<i>n</i> = 14,834)	2019 (<i>n</i> = 15,632)	2020 (<i>n</i> = 10,447)	
Benefits services	776 (2.84%)	765 (2.64%)	409 (2.73%)	
Crisis intervention	114 (0.44%)	127 (0.54%)	73 (0.6%)	
Developmental concerns/prevention	781 (2.84%)	627 (2.15%)	202 (1.39%)	<.0001
Education and employment	423 (1.48%)	279 (0.99%)	123 (0.83%)	<.0001
Family recreation	1401 (5.11%)	791 (2.68%)	305 (2.19%)	<.0001
Healthcare	4010 (14.57%)	3825 (13.27%)	1708 (11.56%)	<.0001
Legal services	362 (1.34%)	372 (1.32%)	138 (0.96%)	.01
Mental/behavioral	2192 (7.98%)	2534 (8.82%)	1415 (9.59%)	<.0001
Nutrition	5096 (18.58%)	5865 (20.4%)	3280 (22.22%)	<.0001
Parent education	4397 (16.03%)	4030 (14.04%)	1726 (11.65%)	<.0001
Basic needs	7905 (28.72%)	9566 (33.26%)	5365 (36.41%)	<.0001

Note: The pre-pandemic period was defined as 2018 and 2019. The post-pandemic period was defined as 2020.

4 | DISCUSSION

The current study sought to add to the growing body of evidence around the home visitation sectors shift to virtual home visitation (VHV) during the COVID-19 pandemic. Los Angeles County offers an important window into the transition to VHV during COVID-19 because it is one of the largest home visitation service sectors in the country with one of the highest COVID-19 case rates (Centers for Disease Control and Prevention, 2020). This study explored factors including home visitor and supervisor transition examine home strategies to virtual home visitation and maternal mental health referral rates among families receiving early childhood home visitation services prior to and after the onset of the COVID-19 pandemic risk.

In this study we found that the home visitors had to make this transition after a relatively short amount of time in the home visitation workforce (less than 2 years). In Los Angeles County, the home visitation workforce has a turnover rate of about 15%–25% per year. This is not uncommon for the field given that home visitors often use their position as entry into the child development field and then seek career advancement after a few years. Sandstrom et al. (2020) have described that 31% of home visitors are beginning their careers and consider themselves a “novice” or “advanced beginner” in their level of professional expertise. On average, home visitors earn less than workers in similar occupations, but earnings vary significantly by highest degree and field of study (Sandstrom et al., 2020). Because of this, only 54% of home visitors state that they likely to remain in their jobs for the next 2 years (Sandstrom et al., 2020). To support and accomplish this rapid shift in service delivery methods, home visi-

tors relied heavily on supervision and peer support to make changes to protocols related assessment and intake, enrollment, consent, and data collection. Home visitors felt the transition was somewhat or moderately difficult for them and that families were also moderately engaged in VHV services. Supervisors differed from their staff in noting that they needed consultation and extra programmatic funding to support their staff to transition to VHV. Supervisors noted more procedural changes than home visitors and believed the transition was more difficult for home visitors than home visitors felt it was for themselves. Additionally, supervisors believed families were more engaged in VHV than home visitors felt the families were. It is important to note that this viewpoint was based on home visitor and supervisor opinion as opposed to an objective measure of family engagement.

There are very few studies published about the transition to VHV but these findings differ from those published by Marshall et al. (2020) who noted the resources and processes most helpful for home visitors in transitioning to VHV in Florida included tips and activities for conducting virtual visits, easy access to programmatic documents, and self-care activities. Additionally, Marshall did not examine difference in perceptions of needs and resources for home visitors versus their supervisors. Similarities between this study’s findings do exist with reports about the transition to VHV from the SafeCare model of home visitation (Self-Brown et al., 2020). SafeCare developers reported that the majority of home visitors were comfortable with the transition to VHV and also felt that that engagement was high among families served. As with the Los Angeles County home visitors and supervisors, SafeCare providers also noted that protocol changes were

necessary, except their changes focused on coaching and assessment.

Despite these efforts and changes in protocols, findings at the family level indicate that parents were not receiving adequate mental health screening or service referrals during the COVID-19 pandemic. Detection of depression and anxiety decreased during the pandemic, despite the fact that others studies have documented increased mental health need during other natural disasters (Peterman et al., 2020). Additionally, emerging data shows that rates of maternal depression appear to be increasing among the general population in the prenatal and postpartum periods as a result of the pandemic (Berthelot et al., 2020; Davenport et al., 2020). However, our results show that fewer mothers enrolling in home visiting met criteria for depression and anxiety after the onset of the pandemic. These findings are in keeping with national findings in home visitation during the pandemic indicating that fewer mothers are being identified for mental health need (Traube et al., 2021). Given that early childhood home visitation is one of the principal safety nets for early detection of maternal mental health need, a decrease in depression and anxiety in home visitation programs warrants future exploration. It is possible that at a time when social interaction and support is limited, virtual home visitation is filling a significant element of social support for mothers of young children, thus mitigating the emotional impact of the pandemic. Prior studies have posited that the more likely explanation is that there may be aspects of the virtual depression screening experience that make detection more difficult (Traube et al., 2021). The decreased mental health screening rates in this sample during the COVID-19 pandemic may also indicate a challenge in virtual screening and service delivery such that home visitors have to focus more of their attention on identifying and addressing basic needs leaving less time for assessments. This warrants further exploration given that diagnosis of other disorders including autism spectrum disorder and internalizing disorders have successfully been deployed using internet mediated approaches (Ros-DeMarize et al., 2021).

However, this study differed from prior national studies (Traube et al., 2021) in finding that the provision of case management services to families in home visitation before and during the pandemic decreased. Case management is an integral part of home visiting programs, and consists of making resource referrals in the areas of food and housing, physical health needs like prenatal care and well-child visits, job training and education programs for parents, mental health or domestic violence resources, early care and education programs, and recreation and enrichment for young children. Overall, there were significant differences in the percentage of families referred for outside resources before and during the pandemic in the areas of basic needs

(e.g., food, diapers, etc.), healthcare, mental health care, nutrition, parent education, family recreation, legal services, developmental assessments, education and employment, and substance use. The only areas where there was not a statistical difference detected pre and post pandemic were benefits services and crisis intervention. Los Angeles saw an influx of federal and state stimulus funding during that pandemic that may have offset the needs for benefits and crisis intervention services. The reduction in referrals may reflect the fact that these are not major areas of need for families enrolling in home visitation during the pandemic. Alternatively, this could indicate that there are fewer community resources available in the current climate, reflecting the fact that many programs for children and families are currently closed due to physical distancing measures.

The outcomes of this study must be interpreted in light of the limitations of this study. A primary limitation of the study is that data from home visitors and supervisors was provided by self-report through convenience sampling. There is no way to calculate a response rate of eligible home visitors and supervisors. Therefore, this data may not be indicative of the transition to VHV for the entire home visitation workforce. The data for home visitors and supervisors is also cross sectional and may not capture changes that occurred in VHV service provision over the course of the COVID-19 pandemic. However, given the impact of the COVID-19 pandemic, this data still provides a significant snapshot of the experiences of home visitors and supervisors in a region disproportionately impacted by COVID-19 infection rates and countywide closures. Additionally, LA Home Visitation Consortium did not collect any additional demographic data about the home visitors and supervisors, which could add additionally context to the findings. This is a common challenge experienced in secondary data analysis and should be rectified in future studies. Because there are few protocols for virtual home visitation data collection and mental health screening, variations could impact the outcomes noted in this study. All home visitation models represented in this study have a robust quality assurance and monitoring process to support data collection by home visitors. These practices should allow for consistency in data collection across affiliates.

5 | CONCLUSION

This study describes one portion of the infant mental health safety net (early childhood home visitation) where families can be engaged and screened for mental health need during the COVID-19 pandemic. In Los Angeles County, significant resources were invested into transitioning to virtual home visitation (VHV) and home

visitors and supervisors felt the transition had been manageable and engaging to families. Yet, due to service disruptions and substantial stressors spurred by the COVID-19 pandemic, it appears that early childhood home visitation providers need to further refine protocols and strategies for mental health screening and referrals for families engaged in VHV services. Future research should explore families and home visitors' views and experiences regarding the virtual depression and anxiety screening process to identify barriers and facilitators to effective screening and referral. Furthermore, an examination of referral rates from home visitation to support services after the onset of the pandemic is warranted to determine whether there are difficulties in identifying and linking families to resources. Finally, it would be valuable to follow up with home visitors and providers to gauge their level of satisfaction with the transition to and sustainment of virtual home visitation during the COVID-19 pandemic. In the future, utilization of standardized measures of service sector transitions should be deployed to support comparisons of these shifts across service sectors and service delivery models.

5.1 | Implications for policy and practice post COVID-19

The COVID-19 pandemic has opened an opportunity to explore ongoing support of virtual platforms as a way to reach already isolated families. The lessons learned during this pandemic have the potential to increase access to home visitation services in the future. Virtual home visitation services allow for continuity of care in the infant mental health service continuum that is valued by both home visitors and supervisors. However, additional workforce development is needed to focus on virtual assessments and increasing the workforce's capacity to respond to the needs of the families they serve. Model specific, long-term standardization for integrating virtual platforms and monitoring continuous quality improvements are essential for the vitality of VHV. This will likely require flexibility in terms of enrollment and intake timelines, funding flexibility, and hybrid models that effectively combine virtual and in-home services. Finally, the success of VHV will always be impacted by inadequate funding support of resources in the community. Therefore, the entire infant mental health sector must continue to advocate for family-centric policies that ensure families have access the resources needed to raise a strong and health family.

ACKNOWLEDGEMENT

Funding was provided by 1st 5 Los Angeles.

CONFLICT OF INTEREST

The authors have no conflicts of interest to report.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ORCID

Dorian Traube  <https://orcid.org/0000-0003-0618-7809>

REFERENCES

- Ammerman, R. T., Putnam, F. W., Bosse, N. R., Teeters, A. R., & Van Ginkel, J. B. (2010). Maternal depression in home visitation: A systematic review. *Aggression and Violent Behavior, 15*, 191–200. <https://www.sciencedirect.com/science/article/pii/S1359178909001372>
- Ammerman, R. T., Putnam, F. W., Altaye, M., Chen, L., Holleb, L. J., Stevens, J., Short, J. A., & Van Ginkel, J. B. (2009). Changes in depressive symptoms in first time mothers in home visitation. *Child Abuse and Neglect, 33*, 127–138. <https://www.sciencedirect.com/science/article/pii/S0145213409000398>
- Armantier, O., Koşar, G., Pomerantz, R., & Van der Klaauw, W. (2020). The disproportionate effects of COVID-19 on households with children (No. 20200813). Federal Reserve Bank of New York. <https://ideas.repec.org/p/fip/fednls/88553.html>
- Baron, E. J., Goldstein, E. G., & Wallace, C. T. (2020). Suffering in silence: How COVID-19 school closures inhibit the reporting of child maltreatment. *Journal of Public Economics, 190*, 104258. <https://doi.org/10.1016/j.jpubeco.2020.104258>
- Berthelot, N., Lemieux, R., Garon-Bissonnette, J., Drouin-Maziade, C., Martel, É., & Maziade, M. (2020). Uptrend in distress and psychiatric symptomatology in pregnant women during the coronavirus disease 2019 pandemic. *Wiley Online Library, 99*(7), 848–855. <https://doi.org/10.1111/aogs.13925>
- Bhat, A., Nanda, A., Murphy, L., Ball, A. L., Fortney, J., & Katon, J. (2021). A systematic review of screening for perinatal depression and anxiety in community-based settings. *Archives of Women's Mental Health, 2021*, 1–17. <https://doi.org/10.1007/S00737-021-01151-2>
- Centers for Disease Control and Prevention (2020). *CDC COVID data tracker*. <https://covid.cdc.gov/covid-data-tracker/#datatracker-home>
- Chung, E. K., Mathew, L., Rothkopf, A. C., Elo, I. T., Coyne, J. C., & Culhane, J. F. (2009). Parenting attitudes and infant spanking: The influence of childhood experiences. *Pediatrics, 124*(2), e278–e286. <https://pediatrics.aappublications.org/content/124/2/e278.short>
- Cicchetti, D., Toth, S. L., & Maughan, A. (2000). An ecological-transactional model of child maltreatment. In *Handbook of developmental psychopathology* (pp. 689–722). Springer US. https://doi.org/10.1007/978-1-4615-4163-9_37
- Cole, B., Pickard, K., & Stredler-Brown, A. (2019). Report on the use of telehealth in early intervention in Colorado: Strengths and challenges with telehealth as a service delivery method. *International Journal of Telerehabilitation, 11*(1), 33. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6597149/>
- Cooke, J. E., Stuart-Parrigon, K. L., Movahed-Abtahi, M., Koehn, A. J., & Kerns, K. A. (2016). Children's emotion understanding and

- mother-child attachment: A meta-analysis. *Emotion (Washington, D.C.)*, 16(8), 1102–1106. <https://doi.org/10.1037/emo0000221>
- Cuartas, J. (2020). Heightened risk of child maltreatment amid the COVID-19 pandemic can exacerbate mental health problems for the next generation. *Psychological Trauma: Theory, Research, Practice, and Policy*, 12(S1), S195. <https://doi.org/10.1037/tra0000597>
- Davenport, M. H., Meyer, S., Meah, V. L., Strynadka, M. C., & Khurana, R. (2020). Moms are not ok: COVID-19 and maternal mental health. *Frontiers in Global Women's Health*, 1, 1. <https://doi.org/10.3389/fgwh.2020.00001>
- Duffee, J. H., Mendelsohn, A. L., & Kuo, A. A. (2017). Early childhood home visiting. *Pediatrics*, 140(3), 20172150. <http://pediatrics.aappublications.org/>
- Duggan, A., Caldera, D., Rodriguez, K., Burrell, L., Rohde, C., & Crowne, S. S. (2007). Impact of a statewide home visiting program to prevent child abuse. *Child Abuse and Neglect*, 31, 801–827. <https://www.sciencedirect.com/science/article/pii/S0145213407001986>
- Feil, E. G., Baggett, K. M., Davis, B., Sheeber, L., Landry, S., Carta, J. J., & Buzhardt, J. (2008). Expanding the reach of preventive interventions: Development of an internet-based training for parents of infants. *Child Maltreatment*, 13(4), 334–346. <https://doi.org/10.1177/1077559508322446>
- Filene, J. H., Kaminski, J. W., Valle, L. A., & Cachat, P. (2013). Components associated with home visiting program outcomes: A meta-analysis. *Pediatrics*, 132(Suppl. 2), S100–S109. <https://doi.org/10.1542/peds.2013-1021H>
- Flujas-Contreras, J. M., Garcia-Palacios, A., & Gomez, I. (2019). Technology-based parenting interventions for children's physical and psychological health: A systematic review and meta-analysis. *Psychological Medicine*, 49(11), 1787–1798. http://search.proquest.com/openview/0f255c956cc7abf520464d696e85b0b7/1?pq-origsite=gscholar&cbl=35753&casa_token=RbwDlqmG18QAAAAA:aHXHuG9mzH-rP7T6vGrX4sC3tTLmdjCNU97yq1k07Y3RAMwz28wGPB08PgB-EoP193nW6nE_zlg
- Guastaferrero, K., Self-Brown, S., Shanley, J. R., Whitaker, D. J., & Lutzker, J. R. (2020). Engagement in home visiting: An overview of the problem and how a coalition of researchers worked to address this cross-model concern. *Journal of Child and Family Studies*, 29(1), 4–10. <https://doi.org/10.1007/s10826-018-1279-x>
- Hinton, S., Sheffield, J., Sanders, M. R., & Sofronoff, K. (2017). A randomized controlled trial of a telehealth parenting intervention: A mixed-disability trial. *Research on Developmental Disabilities*, 65, 74–85. <https://doi.org/10.1016/j.ridd.2017.04.005>
- Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2001). The PHQ-9. *Journal of General Internal Medicine*, 16(9), 606–613. <https://doi.org/10.1046/j.1525-1497.2001.016009606.x>
- Lanier, P., Maguire-Jack, K., & Welch, H. (2015). A nationally representative study of early childhood home visiting service use in the United States. *Maternal and Child Health Journal*, 19(10), 2147–2158. <https://doi.org/10.1007/s10995-015-1727-9>
- Madigan, S., Wade, M., Plamondon, A., & Jenkins, J. M. (2016). Neighborhood collective efficacy moderates the association between maternal adverse childhood experiences and marital conflict. *American Journal of Community Psychology*, 57(3–4), 437–447. <https://doi.org/10.1002/ajcp.12053>
- Marshall, J., Kihlström, L., Buro, A., Chandran, V., Prieto, C., Stein-Elger, R., Koetut-Futch, K., Parish, A., & Hood, K. (2020). Statewide implementation of virtual perinatal home visiting during COVID-19. *Maternal and Child Health Journal*, 24(10), 1224–1230. <https://doi.org/10.1007/s10995-020-02982-8>
- McGinty, K. L., Saeed, S. A., Simmons, S. C., & Yildirim, Y. (2006). Telepsychiatry and e-mental health services: Potential for improving access to mental health care. *Psychiatric Quarterly*, 77(4), 335–342. <https://doi.org/10.1007/s11126-006-9019-6>
- National Home Visiting Resource Center. (2021). *2021 home visiting yearbook*. James Bell Associates and the Urban Institute.
- Nieuwboer, C. C., Fukkink, R. G., & Hermanns, J. M. A. (2013). Online programs as tools to improve parenting: A meta-analytic review. *Children and Youth Services Review*, 35(11), 1823–1829. <https://doi.org/10.1016/j.childyouth.2013.08.008>
- O'Neil, K., Korfmacher, J., Zagaja, C., & Duggan, A. (2020). COVID-19's early impact on home visiting. *First report from a national HARC-beat survey of local home visiting programs*. <https://www.hvresearch.org/wp-content/uploads/2020/04/COVID-19s-Early-Impact-on-Home-Visiting.pdf>
- Pallini, S., Chirumbolo, A., Morelli, M., Baiocco, R., Laghi, F., & Eisenberg, N. (2018). The relation of attachment security status to effortful self-regulation: A meta-analysis. *Psychological Bulletin*, 144(5), 501–531. <https://doi.org/10.1037/bul0000134>
- Pallini, S., Morelli, M., Chirumbolo, A., Baiocco, R., Laghi, F., & Eisenberg, N. (2019). Attachment and attention problems: A meta-analysis. In *Clinical psychology review* (Vol. 74, p. 101772). Elsevier Inc. <https://doi.org/10.1016/j.cpr.2019.101772>
- Peterman, A., Potts, A., O'Donnell, M., Thompson, K., Shah, N., Oertelt-Prigione, S., & Van Gelder, N. (2020). *Pandemics and violence against women and children*. www.cgdev.org
- Race Counts. (2021). *How race, class, and place fuel a pandemic*. <https://www.racecounts.org/covid/>
- Ranson, K. E., & Urichuk, L. J. (2008). The effect of parent-child attachment relationships on child biopsychosocial outcomes: A review. In *Early child development and care* (Vol. 178(2), pp. 129–152). Routledge. <https://doi.org/10.1080/03004430600685282>
- Rapid response virtual home visitation. (2020). <https://rrvhv.earlyimpactva.org/>
- Ros-DeMarize, R., Chung, P., & Stewart, R. (2021). Pediatric behavioral telehealth in the age of COVID-19: Brief evidence review and practice considerations. *Current Problems in Pediatric and Adolescent Health Care*, 51(1), 100949. <https://doi.org/10.1016/J.CPPEDS.2021.100949>
- Sandstrom, H., Benatar, S., Peters, R., Genua, D., Coffey, A., Lou, C., Adelstein, S., Greenberg, E., Runes, C., Park, Y., Burroughs, E., Triplett, T., Hill, I., & Loprest, P. (2020). *Home visiting career trajectories final report*. <http://www.acf.hhs.gov/programs/opre>
- Seddighi, H., Sajjadi, H., & Salmani, I. (2019). Child-friendly humanitarian logistics in natural disasters: A letter to the editor. *Iranian Red Crescent Medical Journal*, 21(8), 95350. <https://doi.org/10.5812/ircmj.95350>
- Self-Brown, S., Reuben, K., Perry, E. W., Bullinger, L. R., Osborne, M. C., Bielecki, J. A., & Whitaker, D. (2020). The impact of COVID-19 on the delivery of an evidence-based child maltreatment prevention program: Understanding the perspectives of SafeCare® providers. *Journal of Family Violence*, 1–11. <https://doi.org/10.1007/s10896-020-00217-6>
- Shapiro, V. (2009). Reflections on the work of professor Selma Fraiberg. *Clinical Social Work Journal*, 37(1), 45–55. <https://doi.org/10.1007/s10615-007-0120-6>

- Shonkoff, J. P. (2016). Capitalizing on advances in science to reduce the health consequences of early childhood adversity. In *JAMA pediatrics* (Vol. 170(10), pp. 1003–1007). American Medical Association. <https://doi.org/10.1001/jamapediatrics.2016.1559>
- Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *Archives of Internal Medicine*, 166(10), 1092–1097. <https://doi.org/10.1001/archinte.166.10.1092>
- Spruit, A., Goos, L., Weenink, N., Rodenburg, R., Niemeyer, H., Stams, G. J., & Colonna, C. (2020). The relation between attachment and depression in children and adolescents: A multilevel meta-analysis. In *Clinical child and family psychology review* (Vol. 23(1), pp. 54–69). Springer. <https://doi.org/10.1007/s10567-019-00299-9>
- Szilagyi, M., & Halfon, N. (2015). Pediatric adverse childhood experiences: Implications for life course health trajectories. *Academic Pediatrics*, 15(5), 467–468.
- Tan, K., & Lai, N. M. (2007). Telemedicine for the support of parents of high risk newborn infants. In *Cochrane database of systematic reviews* (Issue 4), <https://doi.org/10.1002/14651858.CD006818>
- Tandon, S. D., Ward, E. A., Hamil, J. L., Jimenez, C., & Carter, M. (2018). Perinatal depression prevention through home visitation: A cluster randomized trial of mothers and babies 1-on-1. *Journal of Behavioral Medicine*, 41(5), 641–652. <https://doi.org/10.1007/S10865-018-9934-7>
- Tesson, S., Swinsburg, D., & Kasparian, N. A. (2021). Maintaining momentum in infant mental health research during COVID-19: Adapting observational assessments. *Journal of Pediatric Psychology*, 46(3), 254–263. <https://doi.org/10.1093/jpepsy/jsab020>
- Traube, D. E., Cederbaum, J. A., Taylor, A., Naish, L., & Rau, A. (2021). Telehealth training and provider experience of delivering behavioral health services. *The Journal of Behavioral Health Services & Research*, 48(1), 93–102. <https://doi.org/10.1007/s11414-020-09718-0>
- Traube, D. E., Hsiao, H. Y., Rau, A., Hunt-O'Brien, D., Lu, L., & Islam, N. (2020). Advancing home based parenting programs through the use of telehealth technology. *Journal of Child and Family Studies*, 29(1), 44–53. <https://doi.org/10.1007/s10826-019-01499-1>
- Traube, D. E., Molina, A. P., Yingwangkay, S., & Kemner, A. (2021). Perinatal mental health support and early childhood home visitation during COVID-19. *Prevention Science*, 1, 3. <https://doi.org/10.1007/s11121-021-01313-9>
- US Census Bureau. (2021). *U.S. Census Bureau QuickFacts: California*. Quick Facts. <https://www.census.gov/quickfacts/CA>
- Weatherston, D. J., Ribaldo, J., & M., Collaborative for Infant Mental Health Research. (2020). *The Michigan infant mental health home visiting model*. The Michigan Collaborative for Infant Mental <https://doi.org/10.1002/imhj.21838>

How to cite this article: Traube, D., Gozalians, S., & Duan, L. (2022). Transitions to virtual early childhood home visitation during COVID-19. *Infant Mental Health Journal*, 43, 69–81. <https://doi.org/10.1002/imhj.21957>