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Maternal Perception of COVID-19's Potential Impact on the Development of Children Born During the Pandemic

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ABSTRACT

Background: COVID-19 impacted the world population through isolation and social distancing recommendations, which affected new mothers' participation in social interactions. Social interaction is a critical aspect of child development that was limited due to the COVID-19 pandemic. This study aimed to answer the question, "What are the maternal perceptions of the potential impact of social measures during the COVID-19 pandemic on the development of children born during the pandemic?"
Subjects and Method: This qualitative research is important to explore the potential impact of COVID-19 on the maternal perception of child development during the pandemic. Five online interviews were conducted with mothers who gave birth to their first child between March 2020 and March 2021. Open, axial, and selective coding were utilized to identify relevant themes.
Results: Participants felt gross and fine motor skills, cognition, and socioemotional skills were not impacted by COVID-19, but there was a perceived impact on language and communication skills.
Conclusion: The perceived decrease in language and communication skills due to social distancing measures of COVID-19 was congruent with the initial hypothesis: "Delayed language and communication skills are a concern identified by mothers of children born during the pandemic".

Keywords: COVID-19, pediatrics, maternal health, mental health, child development.

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BACKGROUND

COVID-19 impacted Americans through nationwide stay-at-home orders, social distancing recommendations, business closures, and travel restrictions, which impacted new mothers' abilities to participate in social interactions (U.S. Department of Defense, 2022). Social experiences of infants promote development in the brain regions responsible for the foundations of communication, such as joint attention, recognizing facial expressions, and emotional regulation and processing (Ilyka et al., 2021). Social interaction is a critical aspect of child development associated with a variety of increased neural responses and infants' social capacities, such as reciprocity and

turn-taking (Perone and Gartstein, 2019; Ilyka et al., 2021). This study aimed to explore the perceived impact of decreased social exposure on infant development. Namely, to understand the mothers' perceptions about the potential impact of COVID-19-related restrictions on their child's development and answer the question, "What are the maternal perceptions of the potential impact of social measures during COVID-19 pandemic on the development of children born during the pandemic?

SUBJECTS AND METHOD

1. Study Design

The study used qualitative data collection and analysis. The qualitative data was collected through virtual meetings with mothers who gave birth during the COVID-19 pandemic.

2. Participant of Recruitment

This research protocol was approved for expedited review by the University of Texas Medical Branch Institutional Review Board, approval number 22-0303. Researchers used convenience and snowball sampling methods to recruit participants. An electronic flyer was created and distributed via Instagram through the university's occupational therapy account. Additionally, the researchers utilized snowball sampling to identify participants by permitting family members and friends to share the flyer with others. Researchers printed flyers and placed them in local businesses with permission from the facility managers.

Potential participants were emailed a recruitment form to ensure they met the inclusion criteria. Once confirmed, the researchers emailed the participant a confirmation or denial of eligibility. Eligible participants were emailed a Fast Fact Sheet and available times to schedule a 1-2-hour audio and video Microsoft Teams interview.

3. Inclusion Criteria

The study included mothers who had their (a) first child born, (b) between the period of March 2020-March 2021, (c) their child may not have a diagnosis of developmental or neurological disorder, (d) the mothers must be a resident of the United States, (e) must speak English, (f) must be aged 18 or older, (g) must have access to a tablet or device with Microsoft Teams, (h) must provide verbal consent at the beginning of the virtual Microsoft Teams call, (i) and must agree to audio/video recording of the interview.

4. Exclusion Criteria

Mothers were excluded from the study if they did not meet the qualifications or did not consent to the audio and video recording of the interview. Non-English-speaking individuals were excluded from the study due to a lack of resources providing adequate communication requirements. The geographic location of the subjects was not identified during interviews.

5. Study Instruments

For all participants, a one-time audio and video Microsoft Teams interview was conducted during the scheduled time, where researchers asked open-ended questions about the mother's perception of the potential impact of COVID-19 on their child's development. The open-ended questions were formulated to discuss various developmental milestones of gross and fine motor skills, language and communication skills, cognition, social and emotional skills, and maternal access to resources (Table 3). The duration of the interviews was 30 to 90 minutes. All subjects were informed of the study's risks and benefits, that their participation was voluntary, their identity would not be disclosed at the beginning of each interview. Following each interview, the participants received mental health resources through a follow-up email.

The interviews were video recorded

and transcribed on Microsoft Teams. The transcriptions were protected using dual authentication access in a One Drive folder. The interviews were thoroughly processed to decrease the risk of exposing personal information. The participants were assigned a number to differentiate between the information shared in the interviews. A semi-structured interview with retrospective aspects was utilized, using an interview-style methodology.

6. Data Analysis

The researchers utilized a grounded theory thematic analysis to examine the qualitative transcriptions (Stanley and Cheek, 2003). Three authors coded the transcriptions independently using independent coding to organize the data, then conferred to create subthemes through a set of axial codes, and finally performed individual axial coding. Then, the researchers created a thematic chart in an Excel sheet and chose core variables to form selective codes that representing the data gained from the interviews.

7. Research Ethics

To enhance the study's trustworthiness, the research team used reflexivity to self-examine their reasoning and perspective on how their biases have impacted the interpretation of data. The members limited their bias by consulting with each other throughout the process. Furthermore, a consultation from an independent researcher who also had a child during the time frame ensured the interview questions were formulated with minimal risk of bias and were appropriate for mothers from different backgrounds.

RESULTS

1. Maternal perception of child development

Perceived Delayed Development

The mothers noted some gross and fine motor skills delays, but they did not attribute them to the COVID-19 pandemic. Some mothers noted delays in speech development and social interaction skills.

Two mothers noted delays in using fine motor utensils.

> "Coloring took some time and eating with the utensil took some time… She only just recently started mastering using utensils." (P1)
>
> "I think holding a utensil came a little bit later for him." (P3)

Three mothers perceived gross motor skills such as walking, jumping, and pulling to stand to be developed later than anticipated.

> "Well, she was kind of a late walker…. start walking till like 16 months… She's also a little late on sitting up, like a month or two." (P1)
>
> "I would say the only thing that we have noticed that he is a smidge behind on his jumping." (P3)
>
> "He was a tiny bit below behind average as far as pulling to stand and walking. He started walking around 15 months." (P5)

The five mothers in this study did not indicate perceptions of significant delay in their children's current motor skills due to the pandemic. Although mothers acknowledged slight delays in specific motor skills, they did not perceive them to be due to social isolation. The mothers verbalized limited to no concern considering the later integrated fine and gross motor skills.

> "He's not quite coloring in the lines or drawing a face, but he's, I think that's normal for three." (P4)

One mother perceived her daughter as having a delay in language acquisition, and she attributed this delay to wearing masks. To improve her daughter's speech, she supported her at home.

> "Her speech is kind of lagging behind. The way she communicates with me is mostly by gestures and pointing… She's a late talker too, which I think maybe the masks had something to do with it and word

formation. Umm so she's just now starting to say words.... She can't express herself, so she is lacking in that aspect... [her speech] just now kinda started when the mask came off. That's when she started to become more social." (P1)

"We've been trying to do stuff at home to help with her speech like apps and things, some videos, reading to her. She is definitely a late talker." (P1)

One mother expressed concern about meeting language milestones due to a lack of exposure.

"I did have concerns at 18 months whether we were going to hit language milestones at two years. At that point, she was still primarily at home. She wasn't in a preschool, or I wasn't taking her around other kids. She was just mostly with me or with a nanny and I did have concerns with language." (P2)

One mother discussed her child's social interaction skills by explaining that her daughter does not understand personal boundaries and experiences difficulties initiating conversations.

"She doesn't know how to interact with other kids that well." (P1)

Perceived Typical Development

One participant perceived the typical development of fine and gross motor skills.

"Now at three years old, he's very proficient in using a utensil and running and walking climbing. He started walking around like 15 months." (P4)

Two mothers discussed how daycare or preschool positively impacted their child's language development.

"But ever since starting preschool, there's been a burst in her language development. So, she's definitely passed and met her milestones." (P2)

"His language development is outstanding. He was speaking pretty early, and he's always been pretty easy to understand... I think a lot of that is due to him being in daycare and around other kiddos and teachers." (P5)

"She understands what you tell her to do or what you ask of her which is awesome I think especially at her age" (P1)

One mother found that her child continued learning and processing regardless of limited social interactions.

"...but cognitively, I think he is learning and processing so much... like he's making all kinds of connections." (P3)

Maternal Observation

Four mothers said their local park was where their child could socialize.

"Like whenever we're at the park, she's usually pretty independent. She plays by herself. She's nice to other kids, but like she goes, she's very upfront to them. She goes right up. She doesn't know anything about personal space." (P1)

"...we pretty much live at the park." (P5)

"...we do things with friends. We go to the park, so I'm not super crazy." (P4)

"I've been so grateful and so blessed that I have not seen any social delay and maybe that's because we were at the park..." (P3)

Mothers reported their child's interaction once they were able to socialize.

"...once we were able to start traveling and kind of like I would start taking him into Trader Joe's, maybe once a week, and we would interact with the cashier and that all, just like, laid a huge foundation for him because now he is, he will wave to a stranger. He's not. He's not afraid. I'm like, oh, maybe ... this is not good." (P3)

"She does play with her, with the classmates that she has. She knows her names already." (P2)

"Once he was in school at six months, um, it was like sickness after sickness, so he was pretty much out with ear infections or RSV or hand foot mouth. So, he did get

social interactions from his teachers at school and he adjusted well." (P4)

Two mothers reported observations of their child's general disposition and interactions with others.

"She's really shy with new people. I feel like it might be an age thing cause now at 2 years old she umm goes up to anyone." (P1)

"But he is he's a very happy little boy. And if you didn't know that he was born in a pandemic, you probably wouldn't know." (P3)

2. Maternal Wellness Impacted by COVID-19

Access to Resources

The quantity and quality of resources available for to mothers during the pandemic seemed to be affected, mainly by where they lived. Two mothers shared their diverse experiences.

"…We were still able to do in person stuff, so I do feel like I was able to participate in community things as I would have wanted, just with precautions. (P2)

"Almost for the entire first year of his life, there was just not many community options, and that thankfully has changed." (P3)

The study's participants reported that most classes were conducted virtually during the pandemic. Three mothers shared–that they enrolled in online classes, with one mother stating she valued the flexibility of virtual classes. The other participants did not have in-person classes available.

"During the pandemic they didn't have classes in person, which would have been way more helpful because I'm a visual learner and hands on. I did take a class online for our delivery or something like that to learn about it. But it wasn't really in depth like I wanted to be. But that's the only class I took. I kinda just went into everything not knowing what I was doing" (P1).

"It was online, so I watched. I was on a zoom class watching like how to give birth, and that was something I will never forget because you're looking at these images and I'm like, Oh my God, I just want to skip this part and the see on a computer. It was just weird. Same with like learning to breastfeed. It was taught online. All of those circles where you would meet moms that were expecting that I was hoping to meet friends, that didn't exist." (P3)

Another mother shared her experience of available in-person classes.

"We had a couple of, like, prenatal classes at the hospital, but those were super limited." (P5)

Instead of attending virtual classes one participant sought out other resources.

"… of course, like, online like other moms' um friends who were having kids or have already had kids." (P4)

Four of five mothers interviewed shared that their appointments remained in person throughout the pandemic. However, one participant shared,

"While I was pregnant, I had pretty typical prenatal care up until the 3rd trimester, and in the third trimester, some of my visits became virtual." (P5)

Mothers discussed the impact of the pandemic postpartum.

"…I did talk to my doctor about wanting a therapist for like postpartum… and he was super supportive" (P4)

Some mothers vocalized how social isolation impacted access to resources.

"After he was born, there was a pretty big sparsity of resources available for him." (P5)

"…decrease in some of the like group discussions and things like that as he was little" (P3)

One mother shared that the prevalence of COVID-19 prevented her from putting her

child in daycare due to the risks of illness. Four mothers continued to access daycare in their area, while one participant in the study did not access daycare due to financial restraint.

> "... preschool has been huge for his language and cognitive development." (P3)

Perceived Life Impact of COVID-19

The impact of COVID-19 was different for each family. Three mothers noted the limitations in social exposure due to COVID-19 restrictions or personal choice.

> "When he was born. We were limiting exposure as much as we could, so it was just my husband and me and him." (P3)
>
> "I wouldn't let my family see her at all because I was scared, she was gonna get something or they were gonna get something and like, so I didn't let my family see her for like, kinda want to say a lot, like six months or so, till she was of age to kinda be OK." (P1)
>
> "When he was little, we couldn't go or do anything and so he really didn't meet most of his family for quite a while." (P5)
>
> "I think he was more affected by that than most kiddos his age just because he was definitely isolated. And so, you know, it's hard for me to say whether his development would have been different because he is my first kiddo and I don't know what that looks like for other kids and non-COVID times, but he was definitely isolated and, you know, has developed more that he's been, you know, at daycare and out and about and things like that." (P5)

Three mothers noted that most social isolation occurred during the first six months of their child's life. One mother mentioned that their child did not receive daycare until turning six months due to COVID-19 social precautions.

> "...but he was definitely pretty isolated for like the first six months." (P5)
>
> "The first six months was more of the difficult part for us. I think I was way more cautious about who was coming in coming into our home. Hygiene and mask wearing was just where I was at in those first six months, and then I got I think things just started getting better. I started getting more relax about things umm I started going out more." (P2)
>
> "During the first six months of her life, I restricted who visited during... once she hit six months I didn't have the same precautions or worries" (P2)
>
> "He did start going to daycare after he reached six months. The reason why we held off on that was because of COVID." (P4).

One mother recalled her personal experiences with social isolation impacting her parenting and her career.

> "To keep myself from not going crazy. I talked to him all the time. Even when he was, you know, just in the in the little bouncer, I would say like. Mommy's gonna get dressed. Mommy puts on clothes, you know? So I think just narrating everything to him and reading it all helped." (P3)
>
> "...we moved here in July of 2020 and that was so difficult because there was no goodbye. We, you know, I didn't get to say goodbye to my students, my coworkers, we all had to, like, take turns being in the building to pack up our classrooms. It was just so hard..." (P3)

One mother reported her child contracted COVID-19 at one year old and she shared her experience.

> "He got COVID as a one-year-old and he was okay. He is vaccinated now. I think that was a really hard thing, is that the vaccines for his age group took so long and that was the one thing that I kept holding on to... When can he be vaccinated? But as a parent, we had to just make the decision

that we can't keep waiting on this like we're missing moments of his little early life. We just did the best that we could... (P3)

Maternal Stress

A common theme that all mothers shared was their feeling anxious while pregnant during the pandemic.

One of the largest areas of concern was the limited family access to the delivery room.

"As I was getting closer to my due date, it became just me going to my appointments and then the day that I found out I was actually gonna have to go in for delivery, it was just me... and my husband, which was fine." (P4)

"I was only allowed to have one person with me luckily and he [her husband] was with me. So, none of my family could come in. Not even his mom could come. No one. So, I just had him. I'm so glad I had him because I don't know if... I don't know what I have done. If I did that alone." (P1)

"I was actually really in distress because I thought I would have to go to the hospital alone cause there wasn't... communication. No one told me yes, no one told me no, like go, you're going by yourself. Oh, you can bring somebody. It was all kind of like up in the air. That kind of scared me. I didn't wanna have to go in labor alone." (P1)

Two of the mothers voiced their personal concerns and the actions they took to prevent their child from contracting illnesses.

"...I was very hypervigilant, of all the things going on around me...whenever he did get RSV, I was freaking out. He got it like during one of the pops of COVID ... and he got RSV and I was, of course, freaking out and thinking the worst." (P4)

"I would not say that I was, that I had postpartum depression, but I definitely had, maybe, postpartum anxiety just because I was trying to keep this tiny little baby safe from everyone, but also because I had no one else that I could really trust other than my husband, who was also working, like, even my parents and his parents were great, and they would offer to come.... but I can see on Facebook that you're at the gym and you're not wearing a mask... You know what I mean? ...it's all of those thoughts and so it was very hard. Community was slim." (P3)

One mother worried about the impact social isolation on child development.

"I was very concerned about how he would develop and what opportunities was he going to miss out on just because of limiting exposure..." (P3)

"...we are just so grateful because I can't tell you how many days I cried and cried and cried to my husband, saying he's not gonna talk to anyone. He's gonna be so behind. He's not, you know, because it was just...such a worry." (P3)

The fears of COVID-19 were different for each family dependent on their circumstances.

"[my child] was my first and my husbands in the medical field. COVID was very real for us and I just didn't wanna risk it. I didn't know what could happen to him. And it was just always my goal that if he could make it to at least one years old, then maybe...we would be OK." (P3)

Table 1. Demographics of participants

Infor-mants	Child's Sex (M/F)	Child Due Date vs Expected Date	Child Chronologic Age from Date of Interview	Maternal Employment	Additional Caregivers
P1	F	6 Days Late	2 years, 8 months	Grocery Store Clerk	Grandma
P2	F	12 Days Late	2 years, 1 month,	Occupational Therapist	Father, Nanny, Preschool
P3	M	1 Day Early	2 years, 4 months	Elementary Teacher	Father, Preschool
P4	M	29 days Early	2 years, 9 months	Nurse	Father, Grandma
P5	M	20 Days Early	2 years, 11 months	Medical Resident	Father, Daycare

Table 2. Themes developed

Selective Coding	Axial Coding
Maternal Perception of Child Development	Maternal Perceived Delay
	Maternal Perceived Typical
	Maternal Observations
	Access to Resources
Maternal Wellness Impacted by COVID-19	Maternal Perceived Stress
	Perceived Life Impact of COVID-19

Table 3. Interview questions

Skills Targeted	Guiding Questions
Physical skills	Describe the development of your child's physical activity from birth until now.
	Explain any physical activities that your child enjoyed participating in during the pandemic.
	Explain any forms of physical activity that you encourage your child to participate in.
Social and emotional skills	Describe the development of your child's social skills.
	Describe your parenting style. How do you think the COVID-19 pandemic affected your parenting?
	Describe your baby's typical response when you leave a room.
	Describe your baby's typical response to new people.
	Can you explain the amount of social exposure that your baby experienced during the pandemic?
	Describe your family and friends' involvement in your child's life (grandparents, friends, family helping out with baby, etc)
Language and communication skills	Describe the development of your child's communication.
	Describe how frequently you talk to your child.
	Describe forms of language and communication that you engaged your child with during the pandemic, such as reading, sign language, or singing.
	How does your child typically express themselves when they are spoken to? Do you have any concerns?
	How does your child typically respond when they are spoken to? Do you have any concerns?
Community resources	Describe your access to prenatal appointments, hospital visits, or child's physician appointments during the Covid-19 pandemic.

Skills Targeted	Guiding Questions
	If you were attending any classes (parenting, new mother, or infant) before social isolation was recommended, do you recall the COVID-19 pandemic impacting your experience? Did COVID-19 impact your attendance of these courses? (completion, canceled)

DISCUSSION

In this qualitative study, the researchers aimed to answer the question, "What are the maternal perceptions of COVID-19's potential impact on the development of children born during the pandemic?"

Mothers expressed their perception of the effect of COVID-19 on their child's development, highlighting the developmental skill of language as a milestone they believed was impacted by social isolation. Mothers shared that their children had a limited number of universally understood words and decreased exposure to enriched language opportunities due to isolation. These findings seem congruent with speech-language professionals expressing the potential impact of limited lip reading due to masks and limited social interactions with same-age peers in the classroom as a risk for language and communication delay (Charney et al., 2020). One longitudinal study found that children aged 18-24 months exposed to increased early communication and turn-taking skills demonstrated positive language outcomes during school ages (Gilkerson et al., 2018).

According to the National Institute of Health, children best develop their language and communication skills in the first three years of life when exposed to various contexts and languages (National Institute on Deafness and Other Communication Disorders, 2022). Mothers believed that their children's ability to communicate with peers was impacted by social isolation, with a consistent finding of the belief that daycare had a considerable positive impact on language development. Due to the lack of social interactions, some mothers supplemented with video-chatting or walking to parks to increase social interactions.

Mothers in the study reported observations of perceived brief fine and gross motor delays but did not attribute them to COVID-19. Children discussed in the study seemed to develop motor miles within maternal expectations by the time of the interview. Additionally, participants reported that the COVID-19 pandemic did not impact their children's cognition in their ability to solve problems, learn to use new toys, and respond to commands without an apparent delay. Despite limited social exposure and brief isolation, mothers perceived no overall developmental delay in their child's fine and gross motor skills.

Mothers expressed how the COVID-19 pandemic affected resources available in their community. The participants reported diverse experiences concerning their access to resources in the community, which were affected by geographic location and abidance to local COVID-19 protocols. Mothers not exposed to community resources described virtual classes and limited opportunities to communicate with fellow new parents, while other participants expressed satisfaction with their resources.

In a study by Wang et al. (2020) parents experienced higher levels of stress due to the worry of their child contracting COVID-19 when compared to adults with no children. These findings are congruent with the secondary findings of increased maternal stress due to the COVID-19 pandemic. The mothers reported worries surrounding sickness, child development, and their lack

of knowledge of when the pandemic would end. A primary concern of many mothers was the uncertainty of the number of people allowed in the delivery room, feeling anxious not knowing if their husbands would be permitted inside. Maternal concern was noted with the uncertainty of spousal presence at healthcare visits and access to online resources rather than resources provided by healthcare staff (Merlano et al., 2022). The mothers reported how isolation impacted their mental health, saying they could not be in isolation forever and talked to their children "to keep myself from not going crazy." (P3). Maternal stress and anxiety during pregnancy have been found to impact birth outcomes and child development (Dunkel and Tanner, 2012). These findings surrounding maternal mental health must be considered, as mental health impacts the care of the child (Wolicki et al., 2021).

Hypothesis

Mothers of children born during the pandemic have identified delayed language and communication skills as a concern. It is not clear if additional support is needed to resolve these delays.

Implications for Healthcare and Parental Practices

Mothers reported how they perceived their children to have social skills and communication delays. At the park and with family, their children did not socially interact in ways expected by the mothers. COVID-19 potentially affects children's social interactions, and parents and childcare workers should be aware of this potential new form of interaction. COVID-19 could have caused a potential shift in social norms for these children. This potential shift in the social norms of children born during COVID-19 could inform caregivers to change their social and developmental expectations for children. Parents and healthcare workers should be aware of the possibility of new social norms and of the adaptations this new generation of children may require. These children may require increased social support, mental health intervention, and speech intervention. The maternal perception of a delay potentially impacts which specialty healthcare intervention services are sought after. Healthcare professionals should be aware of maternally perceived developmental delays to orient where they direct future care practices.

Maternal wellness and stress were found to be impacted due to the COVID-19 pandemic, which could influence parenting styles implemented in the future. Mothers and children could require social-emotional assistance due to the stress experienced during pregnancy to early life. Mothers who gave birth during this time could benefit from additional services due to increased stress during their child's development.

Maternal wellness was perceived to be impacted by the lack of resources. Many available resources were shifted to virtual platforms during the COVID-19 pandemic and have continued as virtual throughout 2023. Multiple participants mentioned not enjoying the virtual resources and would prefer in-person opportunities. The future of the delivery method of maternal resources could be impacted by COVID-19, affecting maternal stress and wellness surrounding pregnancy.

Some mothers perceived language acquisition and speech to be delayed but improved after introduction to preschool. These children may qualify for future speech and language pathology (SLP) services, so school systems, SLPs, and preschool employees should be aware of the potential impact of COVID-19 on speech and language development.

STRENGTHS AND LIMITATION

One potential weakness in this study is that many participants or spouses work in the healthcare field. The participants' involvement in healthcare may have given them better knowledge and education on child development. Parents' exposure to healthcare potentially created a bias in our results due to a limitation in the variety of skillsets of the participants.

The geographic location of the participants was not specified for each participant. The limited geographic location explored in this study impacts the variety of experiences among participants, so this study does not reflect the experiences of the entire US population. All participants were required to speak English to participate, which excluded non-English speakers from the study, which could lead to an exclusion bias against individuals from ethnic or cultural minorities.

The strengths of this study include allowing individuals to answer open-ended questions regarding their child's development. These open-ended questions allowed the participants to share whatever aspects of their child's development they felt relevant. This interview style allowed for participant comfort and free-flowing thought during the interview.

Throughout the coding of research, many mothers reported similar experiences with their children. The continuity of answers across the five participants suggested a possibility that findings may be generalizable to other mothers who experienced the COVID-19 pandemic.

FUTURE RESEARCH DIRECTIONS

Future researchers should increase the number and variability of participants in interviews, and studies should investigate the paternal perception and impact of COVID-19 on child development. A special consideration for future research should observe the effects of child development outcomes of children with parents in the medical field and those outside the medical field. Quantitative studies should be conducted across many participants to measure the researchers' hypothesis of the impact of COVID-19 on children's language and communication skills on maternal stress. Future researchers should identify and implement screenings to address any potential language and communication delays in children born during the COVID-19 pandemic. Additionally, publicly available support for parents should be available for parents to identify and address any language and communication concerns in their children.

Based on this study's results, the researchers infer a perceived delay in language, communication, and social-emotional skills for children born during the COVID-19 pandemic. The findings do not suggest a perceived delay in gross and fine motor skills due to COVID-19; however, the COVID-19 pandemic affected families in multiple ways, including the maternal experience of childbirth, mothering, and various perceived aspects of their child's development and social exposure. This period of uncertainty has resulted in a vast amount of change that will impact future generations. The outcome of the COVID-19 pandemic's effect on families should be considered when meeting the developmental needs of this generation.

AUTHOR CONTRIBUTION

Authors Emma Laughlin, Caroline Clinch, and Rachel Ballback collected and analyzed the data as well as drafted the manuscript. Additionally, the authors provided critical revisions to the manuscript. Lima Ghulmi and Claudia Hilton contributed to the analysis of qualitative data.

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CONFLICT OF INTEREST

None.

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