Parental perceptions of the COVID-19 vaccine for 5- to 11-year-old children: Focus group findings from Worcester Massachusetts

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ABSTRACT
Vaccine hesitancy is a long-standing public health issue. The present work describes parental perceptions of COVID-19 vaccination for 5- to 11-year-old children, to aid in vaccination efforts. Parents of 5- to 11-year-old children residing in Worcester, Massachusetts, were recruited through community partner outreach to participate in semi-structured focus groups. Focus groups were conducted via Zoom in English (n = 4) and Spanish (n = 3) with a total of 67 parents. Rapid qualitative analysis was used. Most participants were female and of Hispanic ethnicity. Themes included: (1) Trusted sources and influential types of information (e.g. personal COVID-19 vaccine stories from peers and healthcare providers), (2) Motivations for vaccination: health (i.e. protecting children, families, and communities from COVID-19), (3) Motivations for vaccination: social, emotional, and educational (i.e. mitigating related negative effects of COVID-19), (4) Drivers of vaccine hesitancy (e.g. frustration, uncertainty, and confusion), (5) Differentiating vaccine acceptance, hesitancy, and resistance, (6) Needed information. Although this context may be unique to parents of 5- to 11-year-old children from Central Massachusetts, especially those who may be Spanish-speaking, or of Hispanic ethnicity, this work reinforces the need for effective and persistent communication to combat vaccine hesitancy. In describing parents’ perceptions toward COVID-19 vaccination in their 5- to 11-year-old children, we contextualize vaccine hesitancy and highlight opportunities for existing evidence-based communication strategies to increase vaccine confidence and uptake in pediatric populations.

Introduction
As of June 2022, there have been over 5 million cases of COVID-19 in children aged 5 to 11 years in the United States. These infections have led to significant morbidity and mortality. COVID-19 infection among 5- to 11-year-old children increases their risk of diabetes, multisystem inflammatory syndrome (MIS-C), hospitalization, and death. On 29 October 2021 the Food and Drug Administration (FDA) authorized the Pfizer-BioNTech COVID-19 vaccine for emergency use in 5- to 11-year-old children, and on 2 November 2021 the Center for Disease Control and Prevention’s (CDC) Advisory Committee on Immunization Practices began recommending vaccination in this age group. Despite FDA approval, CDC recommendation, and the promise of this vaccine in mitigating individual risk and community spread, only about 36% of this age group nationally and 58% locally (City of Worcester) had received at least one dose of the COVID-19 vaccine as of June 2022. These low rates of vaccination despite high vaccine availability, call attention to parents’ vaccine hesitancy, defined as “delay in acceptance or refusal of vaccination despite availability of vaccination services.” Although vaccine hesitancy in general is a long-standing public health concern, data suggests amplified hesitancy toward COVID-19 vaccination which is likely to continue into the future and affect uptake of other vaccines. Research in adult populations has also shown differences in vaccine hesitancy across racial and ethnic groups, highlighting the importance of understanding this phenomenon in marginalized populations including Spanish-speaking and Hispanic populations. Growing vaccine hesitancy alongside the importance of the COVID-19 vaccine in preventing illness, hospitalizations, and death in the current pandemic position COVID-19 vaccine acceptance at the forefront of current public health priorities.

Prior literature has described COVID-19 vaccine hesitancy among parents in a limited manner, primarily through quantitative assessments. Surveys found that 42% of parents of children ≤18 years old were hesitant regarding COVID-19 vaccination, and only 56% of parents of children 12 to 17 years old intended to vaccinate their adolescent against COVID-19. Health officials and providers were identified as trusted sources of vaccine information. Personal beliefs and experiences of parents were also seen as influential sources of vaccine information. Concerns for safety, efficacy, and side effects were common. These quantitative surveys however, were limited to English-speaking populations, did not focus on or did not include parents of children aged 5 to 11 years old, and all took place at least 6 months before this age group became eligible for COVID-19 vaccination. These findings represent an important first step in understanding
parental perceptions toward the COVID-19 vaccine for 5- to 11-year-old children, but no previous studies employed qualitative methods which would allow for in-depth exploration of complex factors that influence vaccine decisions. Qualitative methods can complement existing quantitative data by contextualizing vaccine hesitancy and advancing vaccine equity.¹⁶,¹⁷ In pandemic settings, qualitative methods are especially useful as they are efficient, and action-oriented, allowing for timely evidence-informed public health efforts.¹⁸ Therefore, the present work used rapid qualitative methods to describe parental perceptions of COVID-19 vaccination in parents of 5- to 11-year-old children. This provides important context for public health officials and pediatric providers working to support vaccination in this age group.

**Materials and methods**

**Design**

Seven focus group discussions were conducted with a total of 67 parents of 5- to 11-year-old children in Worcester, MA. Of these groups, three were conducted in Spanish (n = 37) and four were conducted in English (n = 30). The focus groups were conducted on Zoom and spanned the time directly before and after the FDA’s emergency use authorization of the Pfizer-BioNTech COVID-19 vaccine for children aged 5 to 11 years (27 October 2021 to 21 January 2022.) This work was determined not to be human subject research by the University of Massachusetts Chan Medical School Institutional Review Board.

**Recruitment & inclusion**

Participants were eligible if they were a parent or guardian of a child between the ages of 5 and 11 years, were a resident of Worcester, Massachusetts, were able to participate in a virtual format, and were English- or Spanish-speaking. All participants were offered a $40 gift card sent via mail in recognition of their time. Participants were recruited primarily by community partners (El Buen Samaritano Food Program Inc. (EBS), Parents Union of Massachusetts (PUMA) and YMCA of Central Massachusetts) that serve racially and ethnically diverse populations residing in low-income neighborhoods in Worcester, MA which had been identified by the city as having low COVID-19 vaccine uptake. The community partners promoted the focus groups via their social media (Facebook, Twitter, and Instagram) accounts, and staff and parent leaders from these organizations personally invited program participants and clients to take part in the focus groups. Recruiters from EBS and PUMA also met eligibility criteria and participated in the focus groups.

**Focus group guide**

A semi-structured focus group guide was developed to capture parental perceptions of COVID-19 vaccination for their 5- to 11-year-old children. Questions were designed to uncover perceived motivators and deterrents to COVID-19 vaccination, trusted sources of vaccine information, perceived impact of COVID-19, and influences on the decision to vaccinate in this age group. The guide was approved by community partners involved in facilitating groups and had previously been used with groups of parents of 12–17-year-olds. The English-speaking focus groups were facilitated by trained research staff (MG and AB) and the Spanish-speaking groups were facilitated by experienced native speaking facilitators from the community who were trained by research staff (AB) on focus group protocol. Focus groups ranged from 65 to 79 minutes and averaged 72 minutes.

**Analysis**

All focus groups were audio recorded. Otter.ai, an artificial intelligence transcript service, was used to transcribe audio recordings from the English-speaking groups. Groups conducted in Spanish were professionally transcribed and translated. All transcripts were de-identified and checked for accuracy. Rapid qualitative analysis was used.¹⁸ These methods have been found to have a high level of concordance with traditional qualitative methods and are known for their utility in action-oriented, time-sensitive work.¹⁸,¹⁹ We used a method developed by Dr. Alison Hamilton.²⁰ Team members created a template focused on the vaccine domains addressed in the focus groups. This template was used to summarize each focus group. Two team members (MG and GR) summarized the first focus group and discussed findings to ensure consistency and completeness before summarizing the rest of the groups. Then, a summary was completed for each of the remaining focus groups by a single team member (MG or GR). During the process of data collection, summarizing, and analysis, team members met biweekly to discuss progress and make refinements to the process as needed. For example, a domain of “questions about COVID-19 vaccination” was added to the template in recognition of the frequency with which parents asked questions during the focus group discussions. The summaries were then combined to create a matrix of vaccine domains across all 7 focus groups.²¹ From this matrix, the domains were reviewed and synthesized into resulting content areas, themes, and representative quotations.

Results underwent a member checking process in which a leader from each recruiting organization reviewed our findings and provided feedback.²² All three leaders confirmed the results and expressed approval of their presentation.

**Results**

Parents’ demographic information is summarized in Table 1. Most parents were >30 years old (mean age 38 years), female (92%), of Hispanic ethnicity (71%), and had a high school/trade school degree or less for education (47%).

Perceptions shared by parents were similar in the English and Spanish-speaking groups. In most domains, perceptions were consistent over time from the first focus group to the last. Results are presented by themes within the content areas which emerged, including: 1) Trusted sources and influential types of information, 2) Motivations for vaccination: health, 3) Motivations for vaccination: social, emotional, and educational, 4) Drivers of vaccine hesitancy, 5) Differentiating vaccine acceptance, hesitancy, and resistance, 6) Needed information. A summary of themes within these areas is
were considering vaccinating. Protection and safety were by far the most often reported motivators to vaccinate children. Many of these parents were driven to vaccinate their children because of the perceived immediate health threat of COVID-19. Parents felt the vaccine provided “peace of mind” and viewed it as a way to protect their children, their families, and their communities from the effects of COVID-19. The vaccines’ ability to aid in the prevention of disease transmission, severe illness, hospitalization, and death were all cited as motivations to vaccinate.

Changing perceptions of threat posed by COVID-19
In the focus groups held before the SARS-CoV-2 Omicron (Omicron) wave, many parents cited concern for the perceived threat of COVID-19 toward older family members and the community. In early focus groups (October/November 2021) most parents believed COVID-19 was less severe in children than in adults, and that most children without underlying conditions would be asymptomatic if infected. There was a general belief that although COVID-19 could be severe or deadly for some children with preexisting conditions, this was not the case for most children. Many parents in these groups were concerned about the impact of COVID-19 on the health and well-being of adult family members and their community at large. Parents reported feeling compelled to vaccinate their children to protect older family members, teachers, other children, and to help mitigate community spread.

In focus groups held during the Omicron wave (January 2022), many parents perceived a direct health threat of COVID-19 toward their children. These parents shared the belief that COVID-19 infection could be severe in children and shared that they had seen COVID-19 infections spreading rapidly through families. This perceived severity of COVID-19 infection in children was also observed in parents’ expression of their intentions to vaccinate their children. In these later focus groups, several parents reported that they had waited to vaccinate their children. About half of such parents reported that witnessing infections in family members and experiencing classroom exposures had led them to vaccinate while the other half planned to “wait a little longer.”

Motivations for vaccination: social, emotional, educational
Parents who had already vaccinated, who had intentions to vaccinate, and who were considering vaccinating expressed concerns for and were driven to vaccinate their children because of social, emotional, and educational impacts of COVID-19. These parents described children missing school and falling behind because of remote learning and quarantine after classroom exposures. Parents were motivated to vaccinate their children because they believed vaccination would help in “getting back to normal” by ending disruptions to schooling. Parents were hopeful that vaccination would improve their child’s quality of life. Specifically, parents hoped that vaccination would benefit their children’s mental health, social lives, and education by decreasing cases, slowing virus spread, and reducing the need to quarantine. Several parents also shared that their child was worried about or scared of COVID-19. In

| Age Group       | N  | %    |
|-----------------|----|------|
| <30             | 8  | 12.7%|
| 30 - 39         | 24 | 38.1%|
| 40 and above    | 31 | 49.2%|

| Gender Identity | N  | %    |
|-----------------|----|------|
| Female          | 60 | 92.3%|

| Education Level | N  | %    |
|-----------------|----|------|
| High School/Trade School Graduate or less | 29 | 46.8%|
| Some College    | 11 | 17.7%|
| Bachelor’s degree or higher            | 22 | 35.5%|

| Race/Ethnicity            | N  | %    |
|---------------------------|----|------|
| Asian                     | 2  | 3%   |
| Black/African American    | 8  | 12.1%|
| White                     | 9  | 13.6%|
| Hispanic                  | 47 | 71.2%|

| Language                | N  | %    |
|-------------------------|----|------|
| Spanish-Speaking        | 37 | 55.2%|

Table 1. Self-reported demographics of participants: Worcester, MA parents of S- to 11-year-old children (N = 67).

*due to missing responses categories do not total 67.

Trusted and influential sources of information
Overwhelmingly, the most trusted source of information regarding COVID-19 vaccination reported by parents was healthcare providers, although a variety of sources were cited. Most parents said that their decision to vaccinate their child would be influenced by having conversations with their child’s provider who knew their child’s history and could give personalized recommendations. Many parents also generally expressed trust in providers for COVID-19 vaccine information and reported a desire to learn about COVID-19 vaccination from all providers and healthcare professionals, not just their child’s provider. In particular, they were interested in learning about providers’ personal experiences with COVID-19 vaccination and viewed this as a way to be reassured of the COVID-19 vaccine’s safety and efficacy. Trust for providers was present even in the most resistant parents, who clearly valued providers despite generally lacking trust (e.g., “I don’t trust nobody.”) Resistant parents also wanted to discuss vaccination with a doctor and expressed sentiments such as “the doctor’s office is a safe environment, because you know that doctor personally or heard of that doctor, and you have good recommendation” and “your PCP [primary care provider] should be your most trusted resource for anything that has to do with your health.”

Many parents also reported trust in their own lived experiences and the lived experiences of their friends and families. These parents shared that their decision to vaccinate their child against COVID-19 would be influenced by their own past experiences with vaccination, and by hearing about vaccine experiences and COVID-19 infection experiences from other parents, friends, and family members.

Motivations for vaccination: perceived health threat
Motivations for vaccination were shared by parents who had already vaccinated, who had intentions to vaccinate, and who presented below and representative quotes are presented in Table 2.

| Table 2. | Race/Ethnicity | Language |
|----------|----------------|----------|
| Gender Identity | Female          | Spanish-Speaking |
| Age Group       | N  | %    |                |
| <30             | 8  | 12.7%|
| 30 - 39         | 24 | 38.1%|
| 40 and above    | 31 | 49.2%|

Table 2. Self-reported demographics of participants: Worcester, MA parents of S- to 11-year-old children (N = 67).

*due to missing responses categories do not total 67.
Table 2. Quotations from Worcester, MA parents of 5- to 11-year-old children regarding COVID-19 vaccination.

| Theme | Quotations |
|-------|------------|
| Trusted and influential sources of information | "Sometimes the newscasts are confusing and give news that alarms you more. So, the best reference is to speak with a health specialist, which in this case would be the doctors."
| | "I trust the doctor, because she has all the records of the child, she can tell you what [side effects] functions the vaccine can give the child. Only [her]."
| | "Your PCP [primary care provider] should be your most trusted resource for anything that has to do with your health."
| | "I would like to hear hypothetically my PCP [primary care provider] say, I vaccinated 1000 children and there has been zero side effects some something along those lines."
| | "I would like to hear them tell me that everything is going to be fine, that there are no side effects, and that they are not going to get sick."
| | "The family is very important, the close family, because I spoke with my parents, and I told them: I am afraid of vaccinating my children. But they told me: No (because my sister there in El Salvador has children), no, your sister's children have already been vaccinated, and children between the ages of five and eight are already vaccinated and they didn't get anything. and it’s been a long time since they were vaccinated. That made me feel confident that there are not those terrible side effects that you think children are going to have."
| Motivators to vaccinate: health | "Vaccine provides peace of mind"
| | "I would just say it’s to protect them and others from getting the covid."
| For Others: | "How about, you know, if you don’t get your child vaccinated, your child's playing with my child, my child ends up going to his grandfather's house, who has you know, conditions, and, you know, my grandson gets sick. Now, he makes his grandfather sick, and his grandfather dies because of the medical issues that he has."
| | "Obviously, for the community, you want to stop the spread as much as possible."
| | "I have to vaccinate my daughter, because she can resist [disease caused by COVID-19], but not those of us who live around her."
| | "Safety for my own child, but also thinking about, you know, the teachers that they see every day."
| | "I would say, providing safety for others as well, because this is one of those things, where it’s not sort of like I do what I need for my body, and I’m just thinking about myself we’re thinking about others too, as well right now."
| | "That was like my number one thing with listening with how many people were dying and how many people were contracting it and the health issues that they were having. I want that I want to be safe."
| For child: | "I think the likelihood of death is, is low. If they get COVID, however, there’s still that chance. So, for me, that will push me to still get my daughter vaccinated."
| | "I have to vaccinate my son, because even if it is a vaccine that is still in development, it can save my son."
| | "To keep my son safe, who was asthmatic, severely asthmatic, since he was, you know, very little and I didn’t want him to die."
| | "I would not want the children to go through a major illness, because if it is difficult for adults, I imagine [it’s terrible] for children. Vaccination for children is important.
| Waiting: | "My wife and I were hesitating; we do it, we don’t do it, but … I already had the three vaccines [doses], and I thought: Well, maybe children don’t have symptoms as severe as adults, but at school there are many infections. And we decided to vaccinate them."
| | "I think there is no need to wait, because the disease is upon us, so all children must be vaccinated, because if they are not vaccinated, they can end up in the hospital."
| Motivators to vaccinate: social, emotional, and educational | "We’re just hoping to get little tiny bit of that every day normal that everyone else has started to regain."
| | And it can allow them to mingle with their friends socialize in school also."
| | "My grandson is a very intelligent little boy; his grades went down. You know, they weren’t engaging because they’re sitting in front of a computer. They don’t even want to do that. They want to sit there and play their games."
| | "If it has to be done, it has to be done, for their good and for ours, because they’re missing school, they’re not learning enough."
| | "I think there’s more sort of consequences for the children if they don’t get vaccinated in the, you know, miss more school, you know, for their own mental health for their own education. So, I see it as a pro for vaccinations for this age group to hopefully keep pushing forward and putting an end to the pandemic."
| | "He would ask questions, you know, when I’m going to get vaccinated? whenever they approve it you know, because he also listens to the news when we listen to it."

(Continued)
| Theme | Short- and Long-Term Effects | Quotations |
|-------|-------------------------------|------------|
| Drivers of vaccine hesitancy | "The unknown like I'm a little skeptical like it's still new so we don't know what can come up later." | "My biggest concern was the heart" |
| | "We do not know what the vaccine can do to him in the long term in his development." | "They are children, young people who have had serious, serious complications from a vaccine. So, for me, and my family as a whole, it's really been a tough road for us to travel. And we're all just two years later, considering getting the full vaccinations." |
| | "Putting so much stuff in the young kids body, y'all don't know the outcome when they get older." | "I just don't believe in the research they've done so much because the vaccine isn't, we're getting a booster, okay. And if the vaccine was so great, and we've gotten we've gotten first and second while we get in a booster now, so are the kids gonna get boosters later" |
| | "I want to believe that it's similar to other vaccines that it's not dangerous, but you never know" | "I think the biggest issue if I would call it is the UNKNOWN of what can happen, to be honest I feel the vaccine really hasn't had much time or trial to be given yet" |
| | "I think it is difficult, because no mother wants to be the first. We would like to see other cases of children who have already been vaccinated, and how they have reacted." | "It needs to have more time in trial. It's something totally new, and it doesn't have – like the other vaccines, which have more detail about how they actually originate." |
| | "The virus is how old, how many years ago it came out? Two is going to be, right? And how long do vaccines take? They need years of study, even for adults. It is too fast, and that is what generates mistrust." | "I wonder about how well my nine-year-old is going to be protected, considering her body size is the same as my 12-year-old." |
| | "we were never aware of it. I've never heard if my child needs to be given a shot" | "So, I think there was a lot of confusion that occurred from probably well-meaning individual individuals and associations, but it was very, very confusing in the beginning, even the topic of why I say recently, even the topic of boosters, should we get a booster everybody should get a booster? No, only certain people should get a booster. So, there was a lot of conflicting information being turned out" |
| | "This is something that also gives me a little annoyance. Because at first they said that children were the least affected, those who could tolerate the disease more, who were infected less … Now with this new mutation of the virus, much has been heard that it is the opposite. That it afflicts them more, that they bring new symptoms, that they are more vulnerable … So, what do we believe?" | "So, the pros outweigh the cons" |
| Differentiating vaccine acceptance, hesitancy, and resistance | "Then I realized that sometimes, the fears we have, they can block us so that we do not take the step of vaccinating and protecting our children" | "So as soon as the vaccine is available, and if, I get that advice from the doctor that the kid should be vaccinated, I would … go for it" |
| | "I don't know where I stand … I am confused" | "I think that lack of knowledge gives fear" |
| | "My decision is that I will wait longer. I am not against the vaccine, but I do think that, since it is not 100% approved," | "Not a pro-vaxer, but I'm not an anti-vaxer" |
| | "My children are not going to get that." | "My concerns is like with those dosages and those different vaccines, how is it affecting? How is it affecting them, you know, and how are they going to be able to take it? So that was just one of my main concerns, how is this vaccine going to affect my child?" |
| | "What sort of impact or sort of accommodations are going to be made via school if you know, my child gets vaccinated and then has to miss a week or two, because of any side effects?" | "Well, should I get her vaccinated with the 5- to 11-year dose? Or should I wait till she turns 12 and get the other dose?" |
| | "And so, my concern is like with those dosages and those different vaccines, how is it affecting? How is it affecting them, you know, and how are they going to be able to take it?" | "So that was just one of my main concerns, how is this vaccine going to affect my child?" |
| | "What sort of impact or sort of accommodations are going to be made via school if you know, my child gets vaccinated and then has to miss a week or two, because of any side effects?" | "What concerns do you have about your child getting the flu shot in the COVID 19 vaccine in close proximity?" |
these cases, parents felt vaccination would help to alleviate their child’s anxieties.

**Drivers of vaccine hesitancy**

All parents, even early adopters who had already vaccinated their children, expressed some vaccine hesitancy. For most parents, this was driven by not knowing what to expect from the vaccine. Nearly all parents expressed some level of concern about short- and long-term side effects of the COVID-19 vaccine. Parents were most concerned about reactions to the vaccine, its effect on children’s developing immune system, fertility issues, and myocarditis. While discussing concerns regarding COVID-19 vaccination, many parents also expressed “the unknown” as a negative factor. Parents generally perceived the COVID-19 vaccine as “new,” “experimental,” and not fully approved, “the vaccine really hasn’t had much time or trial.”

Another factor driving hesitancy expressed by many parents was frustration, uncertainty, and confusion regarding vaccine recommendations. Parents expressed confusion regarding dosing of the vaccine for children based on age and weight. There also was confusion and frustration from changes in recommendations, specifically, regarding masking, the severity of COVID-19 infection in children, and the need for boosters. This resulted in a degree of mistrust that fueled vaccine hesitancy. Parents also expressed a lack of perceived benefit of vaccination since vaccinated children may need boosters, can still get COVID-19, and still need to wear masks; “If you have the vaccine and you still get sick . . . what is the point?” A few parents were hesitant because they perceived a focus on vaccines as the only mitigation method. “There’s so many other precautions that you can take to just prevent even getting it that you don’t even need to go the route with the vaccine.”

**Spectrum of vaccine acceptance**

Although only about half of parents explicitly stated their intentions regarding vaccinating their children (or their children’s current vaccine status), nearly all parents’ vaccine intentions fell into one of three groups: (1) acceptant: already vaccinated or intend to vaccinate, (2) hesitant: unsure or undecided, and (3) resistant: no intention to vaccinate. Across these groups, many parents described similar positive and negative factors associated with COVID-19 vaccination that were considered in their decision-making. However, these factors had varying levels of influence on the parents’ COVID-19 vaccine intentions. Negative factors ranged in severity from slight concern in acceptant parents to outright fear in resistant parents. Similarly, positive factors were very prominent in conversations with acceptant parents and were nearly non-existent with resistant parents.

For acceptant parents “pros outweigh the cons”

Many parents were early adopters who had already gotten their child vaccinated or expressed intentions to vaccinate their children as soon as possible. Despite expressed skepticism about side effects and dosing confusion, these parents accepted these concerns in exchange for the perceived benefits of vaccination. As such, these early adopters were generally excited and relieved to have their children vaccinated. Some parents who were vaccine acceptant, however, reported intentions to wait to vaccinate. The most common reason for waiting to vaccinate was to see how other children fared after vaccination. These parents, although vaccine acceptant, were nervous to be among the first to vaccinate their children; “No mother wants to be the first.” Other reasons for waiting to vaccinate included desire for their child to receive a larger vaccine dose if they were close to their 12th birthday, or waiting for full FDA approval.

For hesitant parents, concerns and uncertainty are weighed against perceived benefits and perceived threat

Those parents who expressed being unsure if they would vaccinate their children shared sentiments such as “I don’t know where I stand . . . I am confused” and generally expressed that more information regarding the COVID-19 vaccine (type, development, dosing, etc.), its safety, and efficacy would help them in this decision-making. Like the acceptant parents, hesitant parents shared both motivators and deterrents to vaccinating their children against COVID-19. However, hesitant parents perceived deterrents as being more severe, and the deterrents weighed heavily against perceived motivators and led to feelings of ambivalence.

For resistant parents there is fear and a lack of perceived benefits

Several parents said they have no intentions to vaccinate their children; “My children are not going to get that.” One parent was so adamantly against having her children vaccinated that she had looked into moving out of state in case vaccine mandates were enacted. Resistant parents expressed fears of vaccine side effects, and strongly questioned the safety of the COVID-19 vaccine. Any perceived benefits of vaccination (mainly prevention of death) were outweighed by fear, mistrust, and the belief that “there’s so many other precautions that you can take to just prevent even getting it.” The general perception shared by these parents was that “there are really no pros to the vaccine.”

**Needed information**

Nearly all parents had unanswered questions and wanted opportunities to discuss vaccinations. Although the focus group prompts did not ask parents to share their questions regarding COVID-19 vaccination for their children, in most groups many questions emerged. As shown in Table 2, many of these questions were about dosing of the vaccines for children; other questions were about side effects, efficacy, safety, and co-vaccination. Additionally at the end of most of the focus groups, parents expressed gratitude for the opportunity to discuss COVID-19 vaccination.

**Discussion**

The present study provides salient and novel qualitative insights from parents of 5- to 11-year-old children regarding COVID-19 vaccination. Our study enrolled an often-
underrepresented population of Hispanic and Spanish-speaking parents from predominately low socioeconomic areas. Through the present work, the perspectives of these parents afford important insights that provide context to low vaccination rates seen in this age group in the first several months after the vaccine became available to them and expands the current understanding of parental COVID-19 vaccine hesitancy. This context and understanding in conjunction with existing vaccine literature and evidence-based vaccine promotion strategies, can be implemented by providers and public health messaging campaigns to increase parental COVID-19 vaccine confidence through effective communications.22 Furthermore, as other vaccines in general face increased public skepticism and new vaccines are developed, these lessons on parents’ perceptions of novel vaccines will be important in advancing pediatric vaccination.

Our qualitative findings reinforce the important role of pediatricians in promoting COVID-19 vaccination. In line with what is known from recent national quantitative surveys, we found that providers are parents’ most trusted source of information regarding COVID-19 vaccination for their children.13 Parents want to have discussions with providers in which providers share personal stories and experiences, specifically related to successful COVID-19 vaccinations and to the choice to vaccinate their own children. Such discussions can foster trust in the COVID-19 vaccine, help parents understand what to expect when they vaccinate their children, and decrease some of the uncertainty, confusion, and frustration that drives parental COVID-19 vaccine hesitancy. Sharing COVID-19 vaccination stories and experiences also gives providers an opportunity to empathize with parents and recognize the emotional nature of vaccine decision-making.23 Our findings also support the importance of personal experiences9,24 and the role of peer modeling25 in COVID-19 vaccine decision-making. Parents want to hear about friends’ and family members’ experiences with vaccinating their children against COVID-19. Again, personal stories from trusted sources can help combat the uncertainty, confusion, and frustration driving vaccine hesitancy. Amplifying personal stories in vaccine messaging and equipping parents with the tools to share their own vaccine decision-making experiences with their peers, are therefore important strategies which can be used to increase vaccine confidence.26,27

We found that parents perceived the COVID-19 vaccine as “new,” and “experimental” which contributed to hesitancy and delayed vaccination, which is in line with prior work describing parental hesitancy in relation to novel vaccines.28,29 These perceptions highlight the need to build trust in the vaccine development and approval processes. Sentiments shared in these focus groups illustrated how a lack of trust can impact vaccine uptake. As COVID-19 vaccine recommendations expand to younger age groups, and vaccine technology advances, this trust will continue to be vitally important to vaccine acceptance. Our findings also bring to light how misinformation (false information shared without the intent to deceive) and disinformation (intentionally false or misleading information) can erode trust in vaccines and affect parents’ vaccine intentions.30 In light of the vast amount of information available to parents, there is a need to preempt negative vaccine messaging to support positive vaccine intentions, which tend to match vaccine behavior.31 Preemptive messaging should foster positive vaccine intentions by expanding parents’ understanding of the vaccine approval process and by highlighting the safety and efficacy of vaccines in general and especially novel vaccines.

The balance between motivating and deterring factors is also of vital importance in vaccine uptake. By helping parents perceive more motivating factors at greater intensity and by addressing deterrents to lessen their influence, providers and public health messaging campaigns can combat vaccine hesitancy and resistance. Amplifying motivators and working to minimize the influence of deterrents stands to have the greatest impact in moving hesitant parents toward vaccine acceptance. Our findings revealed important motivators to amplify in messaging, including motivators that are and are not currently recognized by parents. Although parents in the focus groups were motivated by perceived health benefits of COVID-19 vaccination, no parents discussed post-acute sequelae of COVID-19 (PASC), or MIS-C, which are associated with COVID-19 infection.3-34 Messaging may further motivate parents to vaccinate by keying into these currently under-recognized health risks and applying the principles of health communication theories, like the Extended Parallel Process Model.35 This model posits that messaging must convey both threat and efficacy components to produce behavior change. Designing messaging around this model could help parents to appraise the threat of COVID-19 (in perceived susceptibility and perceived severity) and highlight their self-efficacy and response efficacy through vaccination which prevents these sequelae. Also, messaging often overlooks the broader benefits of vaccination, that should be highlighted. Not all parents believed vaccination was the best way to protect their child’s health; therefore, it is important that messaging highlight not just the health risks of infection and benefits of vaccination but also the social, emotional, and educational risks associated with COVID-19 which can be mitigated through vaccination.36 These findings have important implications in vaccine promotion messaging in public health campaigns and in individual patient-provider conversations.

Our results also detail deterrents to COVID-19 vaccination including frustration, uncertainty, and confusion which exist alongside motivators, and drive vaccine hesitancy. Like the general adult population, parents were deterred from vaccination by short- and long-term side effects, changing recommendations, and lack of perceived benefit to vaccination.37 Importantly, our results suggest that although deterring factors are similar across most parents, the level of influence these factors have on parents’ decision-making varies. COVID-19 vaccine hesitancy exists on a spectrum across which deterring factors are perceived with increasing severity. Our work, in line with work done in adult populations,38 suggests the importance of understanding nuances of difference on the spectrum, and recognizing the fluidity with which parents may move through the spectrum. In particular this understanding is relevant to the conversations regarding vaccination that providers should have with all parents, even those who have refused vaccination in the past. Additionally, parents’ frustrations, uncertainty, confusion, and desire for more information highlight that deterring factors should be addressed.
through proactive and continued communication, so parents are not left vulnerable to misinformation which can further drive vaccine hesitancy.\textsuperscript{39}

As the pandemic continues, the need to vaccinate will not lessen. Providers, peers, and public health practitioners should be persistent in having COVID-19 vaccine conversations with parents. Vaccine intentions may evolve over time; providers and peers should not give up after an initial "no" but rather use insights shared here to help gradually move parents toward vaccine acceptance. Peer modeling efforts and public health messaging campaigns featuring personal stories should also be continued to support vaccine confidence. Moving forward, these strategies may also be applied to support and bolster confidence in other childhood vaccines.

\textbf{Strengths and limitations}

The rapid qualitative approach of the present work is a clear and significant strength. Through these methods we fill an important gap in the literature, parental perceptions of COVID-19 vaccination for their 5- to 11-year-old children, in an efficient and effective manner. Our results have vital implications in informing ongoing efforts to increase pediatric vaccination rates. This work is further strengthened by the inclusion of Spanish-speaking parents and our partnership with trusted community members and organizations. Our community partners were much more efficient and successful at direct recruitment compared to passive recruitment through social media. Furthermore, the participation of these community partners in the focus groups was instrumental in fostering a safe and trusted environment for discussion.

This work also has limitations. Participants were drawn from one area in Central Massachusetts. Our findings provide unique context specific to parents of 5- to 11-year-old children from Central Massachusetts, especially those who may be Spanish-speaking, of Hispanic ethnicity, or from low socio-economic areas. This context, therefore, may not represent the perspectives of all parents. Additionally, with the ever-changing nature of the COVID-19 pandemic, parent perceptions may evolve overtime especially as vaccine recommendations and approvals are updated.

\textbf{Conclusion}

As trusted messengers regarding COVID-19 vaccination, providers, and public health practitioners have a responsibility to communicate with parents and assist in the vaccine decision-making process. Parents have many questions, concerns, uncertainties, and frustrations regarding COVID-19 vaccination for their 5- to 11-year-old children that need to be addressed by providers, preferably in personal discussions. Findings from this study point to the need to highlight the broad benefits of vaccination and educate on lesser-known risks of not vaccinating. Sharing personal anecdotes helps parents understand what to expect from vaccination and lessens their hesitancy. Public health efforts should also engage families, peers, and other parents, who can bolster COVID-19 vaccine confidence by sharing personal vaccine experiences. Improving vaccine confidence must be a priority to prevent further morbidity and mortality from COVID-19 among children. Moreover, all parents, including even those that previously accepted vaccination, may need more education and support in discussions about boosters as this age group becomes eligible for them. The potential for further boosters in the future and the low uptake of boosters observed in other age groups, lend even more urgency to these ongoing discussions. Integrating what is already known to improve vaccine uptake with findings from this study provides concrete communication strategies that can be tailored to increase vaccine confidence and uptake in this age group.

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\textbf{References}

1. CDC. COVID data tracker. Centers for disease control and prevention; 2020 Mar 28 [accessed 2021 Dec 7]. https://covid.cdc.gov/covid-data-tracker.

2. COVID-19 hospitalizations; [accessed 2022 Mar 8], https://gis.cdc.gov/grasp/COVIDNet/COVID19_3.html.

3. Barrett CE. Risk for newly diagnosed diabetes 30 days after SARS-CoV-2 infection among persons aged 18 years — United States, March 1, 2020–June 28, 2021. MMWR Mortal Wkly Rep. 2022;71. doi:10.15585/mmwr.mm7102e2.

4. Commissioner O of the FDA authorizes Pfizer-BioNtech COVID-19 vaccine for emergency use in children 5 through 11 years of age. FDA; 2021 Oct 29 [accessed 2021 Dec 7]. https://www.fda.gov/news-events/press-announcements/fda-authorizes-pfizer-biontech-covid-19-vaccine-emergency-use-children-5-through-11-years-age.

5. Woodworth KR, Moula D, Collins JP, Hadler , SC, Jones , JM, Reddy, SC, Chamberland, M, Campos-Outcalt, D, Morgan , RL, Brooks, O \textit{et al} . The advisory committee on immunization practices’ interim recommendation for use of Pfizer-BioNtech COVID-19 vaccine in children aged 5–11 years — United States, November 2021. MMWR Mortal Wkly Rep. 2021;70 (45):1579–1583. doi:10.15585/mmwr.mm7045e1.
