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# Barriers and facilitators to improving routine vaccination coverage in East Aceh during the COVID-19 pandemic: a qualitative study

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## Abstract

**Purpose:** East Aceh is one of the districts in Aceh Province that has a low rate of routine vaccination of children, especially in a pandemic situation. It is essential to research to understand more about the challenges in providing vaccination services due to COVID-19. **Methods:** This study used a qualitative approach with Rapid Assessment Procedure. Data was collected in three *Puskesmas* in East Aceh with the lowest vaccination coverage areas. The targeted participants in this study were: Caregivers, Health workers, Community cadres, Vaccine coordinators, and Vaccine advisors. **Result:** The phenomenon of COVID-19 vaccine refusal influenced caregivers' to also refuse routine vaccination. Husband or father had a big role in determining whether children could get vaccinated. Caregivers were also afraid of vaccine side effects and vaccination methods using syringes as they often heard negative rumors about it. The lack of influential figure support also affected communities' perception of vaccination. On the other hand, several things might influence caregivers to bring their children to get vaccinated. Regular reminders from village midwives might influence caregivers to visit *posyandu* to get their children vaccinated. Good knowledge of the benefits of immunization for children is also important to raise caregivers' awareness. **Conclusion:** This study recommends stakeholders and health professionals improve routine immunization programs, particularly in pandemic situations. The findings are anticipated to guide the creation of health campaign strategies encouraging caregivers to bring their children in for vaccinations.

**Keywords:** vaccine; COVID-19; immunization; qualitative; Aceh

## INTRODUCTION

Immunization services in Indonesia are provided through the Expanded Programme on Immunization (EPI) and are mainly based in community health centers (*Puskesmas*) [1]. In 2020, the government issued Government Regulation Number 21 regarding significant national constraints that require all workplaces (except those in essential sectors), religious activities, and other activities in public places to be temporarily shut down in areas enacting the large-scale social restrictions (PSBB) [2]. It also impacted Puskesmas, including services such as the Integrated Health Service for the Child (posyandu), which is the place for implementing routine immunization services. Most areas in Indonesia need to close posyandu for months since April 2020 until the government releases regulations to implement posyandu with health protocols to prevent the spread of COVID-19 [2], [3].

Timely vaccination is widely recognized as a highly successful public health intervention. For example, in the Southeast Asia (SEA) region, vaccination has eradicated the transmission of wild polio and maternal and neonatal tetanus and significantly reduced the

prevalence of measles, Japanese encephalitis, and hepatitis B (HepB) [4]. Disruption of routine immunization services could lead to secondary outbreaks of vaccine-preventable diseases and exacerbate long-standing inequalities in vaccination coverage, especially in rapidly urbanizing cities [5]. The rapid assessment by the Ministry of Health (MoH) and UNICEF in April 2020 showed that 84% of all health facilities reported immunization service interruptions at fixed and outreach sites [6]. The routine immunization uptake to prevent childhood diseases such as measles, rubella, and diphtheria has decreased since the first COVID-19 case was found in Indonesia. Compared to the previous year, diphtheria, pertussis, tetanus (DPT3), measles, and rubella (MR1) vaccination coverage rates fell by more than 35% in May 2020. The challenges are found at multiple levels. Regarding access barriers, health services were suspended due to the fear of contracting COVID-19. From the supply side, there was a lack of protective equipment for safe immunization, commodity shortfalls, and redirecting immunization staff [7].

Aceh Province is a province in Indonesia with the lowest rate of routine vaccination for children [8], [9]. Based on RISKESDAS 2018, the routine vaccination rate in Aceh is 19,54% [10]. In the pandemic situation, the trend has declined. According to the Aceh Provincial Health Office, the uptake of routine immunization in Aceh Province dropped to 42.7% in 2020 and 38.4% in 2021. Among all districts, East Aceh is one of the districts in Aceh Province with a low rate of routine vaccination of children, where the rate dropped to 31.5% in 2020 and 29.9% in 2021. In the pandemic situation, the trend has declined [11].

Research that focuses on getting information related to the challenges of immunization services due to COVID-19 needs to be conducted to ensure that children are protected by providing them with immunization. This research aims to identify the barriers and driving factors for caregivers and healthcare workers' vaccination uptake and ways to promote on-time vaccines and catch-up vaccines for children. Findings from the study will inform the design of interventions aimed at supporting the government’s immunization programs to increase the vaccination rate in East Aceh.

## METHODS

East Aceh is in Aceh Province, located north of Sumatra Island. The government provides health services through 27 puskesmas, 63 puskesmas pembantu, or subsidiaries of the public health center, and three general hospitals [12]. The study was conducted in three Puskesmas working areas: Puskesmas Idi Rayeuk, Puskesmas Perkebunan Inti, and Puskesmas Idi Timur. These three puskesmas were chosen based on prior information collected from the East Aceh District Health Office on the lowest vaccination coverage areas. The number of children who did not receive routine vaccinations during the pandemic was higher in these three areas.

This study used qualitative methods with the Rapid Assessment Procedure. This study used secondary qualitative data collected by Save the Children Indonesia for their vaccine project in Aceh. Save the Children has been a global movement in Indonesia since 1976 to ensure children's rights are fulfilled [13]. Data were collected on June 13–30, 2022, using inductive reasoning. Ethical approval was secured from the FKM UI ethics committee with the number: Ket-441/UN2.F10. D11/PPM.00.02/2022.

*Participants and recruitment*

The targeted participants in this study were: 1) caregivers; 2) health workers; 3) community cadres; 4) vaccine coordinators; and 5) vaccine advisors. The data was collected from three puskesmas in East Aceh, and in each puskesmas, four caregivers were interviewed. We interviewed caregivers who one of these criteria:: have a child or children who missed their routine vaccination during the COVID-19 pandemic

- have zero-dose child/ children
- have a newborn baby
- have a child or children who get their vaccination on time

From each Puskemas, one health worker and one community cadre who worked in the immunization program were interviewed. One vaccination coordinator from the district health and provincial health offices was involved in this study. Data was also collected from the representative vaccine advisor from the think-tank institution that works on child health, including vaccination issues in Aceh. Details of the sample can be seen in the table below.

*Data Collection and analysis*

Nine local enumerators conducted face-to-face interviews. They received four days of training and ongoing feedback on interview techniques before commencing the interviews. These enumerators have been divided into three groups, each consisting of three people.

Interviews explored participants' views on the impact of COVID-19 on their capabilities to get their children vaccinated, their experience in bringing their children to get vaccinated, the information and campaigns they are receiving on immunization, and

**Table 1. Participants of the study**

| Informant | Method | Number of participants in puskesmas | Total participants in East Aceh |
|---|---|---|---|
| **Caregiver**<br>- Who have a child or children who missed their routine vaccination during COVID-19 pandemic<br>- Who have zero-dose child/ children<br>- Who have newborn baby<br>- Who have a child or children who get their vaccination on time | In-depth interview | 4 | 12 |
| **Caregiver** | Focus group discussion (FGD) | 8 | 24 |
| **Health worker** | In-depth Interview | 1 | 3 |
| **Communities Cadre** | In-depth interview | 2 | 6 |
| **Vaccine Coordinator** | In-depth Interview | 2 | 2 |
| **Vaccine Advisor** | In-depth interview | 1 | 2 |
| **Total** | | | 49 |

what is needed to improve immunization programs in East Aceh. An interview topic guide was utilized to maintain uniformity, although the approach was adaptable to allow participants to produce naturalistic data on what they felt was essential. The topic guide was created by generating questions to examine the areas of interest, piloting them with the health advisor familiar with the study team, and then making minor changes to some questions to clarify them. The interviews lasted between 30 and 60 minutes.

Based on the study's goal, main themes and sub-themes were found after reviewing the transcribed data numerous times. Thematic analysis was employed in this study, along with a description of the in-depth items examined. The authors consolidated a substantial amount of material and its verification into a more digestible manner thanks to ongoing data analysis throughout the study. We also used comparison tables to compare views of numbers between research clusters to organize the data. We divided the data into more manageable categories, created codes, and looked for potential trends from a comparative viewpoint as part of our study.

## RESULTS

We interviewed 25 participants in three puskesmas in East Aceh. All of the participants were female. The mean age of the caregivers' participants was 31 years; for health workers, it was 38.2 years; for communities' cadres, it was 41 years; and for other stakeholders, it was 36.5 years. For caregiver participants, most of them have 1-2 children.

The findings of this study could be divided into caregivers' and health workers' perceptions on the effects of the pandemic situation on routine vaccination, caregivers' and health workers' barriers to getting the child vaccinated, facilitators to bring the children to get vaccinated, efforts carried out and needed to increase immunization coverage, and factors that would promote vaccination uptake.

***Perception towards the effects of the pandemic on routine vaccination***

Most health workers and Health District Office staff revealed that routine vaccination rates had dropped significantly during the pandemic. Even though, before the pandemic, the rates were low, caregivers were still willing to take their children to health centers to get vaccinated. However, during the pandemic, the efforts to encourage caregivers to vaccinate their children were more challenging due to high COVID-19 vaccine refusal in Aceh, which impacted the decision to take the children for routine vaccination.

> *"Even though in prior pandemics the vaccine rate was low, caregivers are still willing to bring their children to get vaccinated. In these 2 years of pandemic, it was dropped, and this is also stated by Puskesmas (the health center)." (Staff at the District Health Office)*
>
> *"Day by day, the vaccine rate declined, especially since the implementation of the mandatory COVID-19 vaccine. Caregivers thought (we would give them) COVID-19 vaccine instead" (Health worker)"*

From the caregivers' perspective, the pandemic situation itself had no impact on their intention or capacity to bring their children to get vaccinated. Caregivers mentioned they were not concerned over the spread of COVID-19 in the health centers since they were aware of ways to prevent the disease (using masks, doing hand washing, and conducting physical distancing). Most caregivers reported that the health centers and *posyandu* also carried out the COVID-19 health protocols. Caregivers also claimed the services were safe and comfortable, and the average distance of

*posyandu* from the neighborhood was quite close. During the pandemic, caregivers visited the health centers and *posyandu* to check their children's health and development. The on-time vaccinated group also took their children to get vaccinated, but this was not applied to parents with zero-dose children.

> *"There was no difference. My child was fully vaccinated." (Caregivers, on-time vaccinated.)*
>
> *"None (there was no difference); I don't want my child to get vaccinated; when we visited posyandu (the vaccination center), s/he only measured his/her weight." (Caregivers, zero-doses)*

***Caregivers' barriers to getting the child vaccinated***

The husband or child's father is crucial in deciding whether the children can get vaccinated. Most caregivers reported needing to consult with their husbands before bringing their children to get the vaccination. A few caregivers stated that mother and father would discuss their children's health, but in the end, the father would be the decision-maker. Almost all caregivers who have zero-dose children expressed that their husbands allowed their children to visit *posyandu* but not to get a jab. Most health workers also mentioned that the biggest challenge was when the child's father did not allow their children to get vaccinated.

> *"Honestly, I think it was better for the children to get vaccinated, right? But I did not have permission from their father. I had a discussion before(with the father and asked his opinion since the children had not yet received vaccinations. My husband said it was okay if the children visited Posyandu but not to get a jab." (Caregiver, zero-doses)*
>
> *"When we asked why (did you not bring your child to get vaccinated), ma'am? There was no need, since my husband did not allow it." (health worker)*
>
> *"Most of the reasons to not get vaccinated were because of the child's father. There was a family where the mother wanted her child to get vaccinated, but because the father was not aware (of childhood vaccination), he did not allow it." (Village Cadre).*

Some participants mentioned caregivers who did not bring their child to get vaccinated because they were afraid of its side effects. They claimed to have heard negative rumors that after getting vaccinated, children would experience fever, swelling, and other illnesses. A few caregivers stated that after getting vaccinated, children would be fussy, and the parents could not do other priorities, such as sleep or work.

> *"The father was afraid that after getting vaccinated his child would cry in pain, get a fever, and the body would be swollen…" (Caregiver, zero-doses)*
>
> *"It seems they were afraid that someone might have injected their children; the parents were concerned about the side effects." (Caregiver, on-time)*
>
> *"On average, communities did not want to receive immunization because they saw in the media that immunization can cause side effects. So caregivers were afraid of the effect." (Health workers)*

Some participants expressed that caregivers were afraid of the injection delivery method in vaccination, thus influencing their decision to take their children to get vaccinated. Caregivers have different perceptions of the types of vaccinations. They prefer their children to receive an oral vaccination rather than an injection. Since it uses an oral method, participants frequently mentioned oral polio vaccination (OPV) as their "preference" vaccination in this case. This fear of needles is a common barrier that parents have to overcome when getting their children vaccinated.

> *"The reason was that the father did not allow it. I have asked him: 'our child has not got vaccinated yet, should we visit Posyandu?' The father said, "If you want to visit posyandu then it's okay, but do not let this child get an injection vaccination." (Caregiver, zero-doses)*
>
> *"Yes, as I remember, there was a time when caregivers requested that their children only receive oral polio vaccine; they did not want to receive the injection method. "It was difficult; oral polio was received only at the beginning of the vaccination cycle timeline, and in the next timeline of vaccination we used an injection method." (Healthcare worker)*

Some caregivers stated that they could not bring their children to get vaccinated when their children got sick even though they expressed they hoped their children would receive vaccination. A few participants also mentioned when their children already got vaccine-preventable diseases, such as smallpox, they would not bring their children to get vaccinated since they thought it was already too late that their children already got sick.

> *"Yes mam', she is often getting sick, so I am afraid to take her to get a jab even though I want to. (But) that is the situation, I don't know, her*

*immune system is weak, her weight is decreasing." (Caregiver, missed immunization)*

***Health workers' barriers to increasing vaccination uptake***

Healthcare workers stated that negative rumors about vaccination would influence caregivers' decisions in taking their children to get vaccinated. For example, some health workers mentioned stories about the vaccine's side effects and perceived the vaccine as haram. The information was circulated to caregivers through social media or broadcast from messaging applications.

*"When in 2018, there was a crash program (program to accelerate immunization coverage) of measles and rubella, the hoax news was spread in communities. They got it from social media that after receiving the vaccine (children) died. After those rumors (the willingness to get vaccinated) was decreased, (after parents saw/ heard the hoax news) they did not want to (take their children) to get vaccinated." (Healthcare worker)*

The influential figures were important in influencing communities to get their children vaccinated. However, some participants claimed that a lack of support from public figures, such as village heads and traditional and religious leaders, could affect the perception of communities on vaccination.

*"When socialization session geuchik's son (Geuchik = village leader) did not get vaccine. Then, how should we take them as a model (if they don't show it). There was no one really play a role for vaccination, there was no figure." (Healthcare worker)*

***Facilitators to bring the child to be vaccinated***

In East Aceh, village midwives significantly remind caregivers to bring their children to get vaccinated on time. In addition, together with village cadres, they conducted socialization, home visit, and even a personal approach to the caregivers. Village midwife was also one of the most trusted sources for caregivers seeking information on children's health.

*"Look at the schedule, every 10th of each month (we) visit Posyandu. If we missed it, the midwives would call us." (Caregiver, on-time) "As long as the announcement from Posyandu, we would come. There was a caution to do physical distancing. The midwives informed us when we should come to get the measles vaccine, there was a reminder." (Caregiver, missed immunization)*

Some participants believed that caregivers who were aware of the importance of vaccination would bring their children to get vaccinated. It also includes having knowledge of the benefits of immunization for children and its side effects. At the beginning of the interview, the participants were asked their opinion on the vaccination. Most participants, including parents with zero-dose children, stated that routine immunization is essential or valuable for their children's health. They believed vaccination could give their children a better immune system, so the vaccinated group mentioned that they would get sick if their children did not take the vaccination. However, a few participants argued that it was not only about the knowledge but also the attitude since educated people would not bring their children to get vaccinated. Therefore, it depends on their belief and environment, including the family's decision.

*"(I think) it is not only about the education factor that influences whether caregivers want to bring their children to get vaccinated. It is also about the side effects of vaccines that (caregiver perceived) children would receive: fever, fussy child, swollen foot, etc. According to the character, it is challenging; there is no one who wants to bring their children to get vaccinated; the uptake is zero." (Healthcare worker)*

Some participants claimed that they brought their children to get vaccinated so their children could be healthy and improve their immune systems. However, caregivers from the on-time vaccinated group mentioned that they would get sick if their children did not take the vaccination.

*"At any rate, my child must be fully vaccinated. Even though it is raining, I will go. The midwives also said we should regularly visit (Posyandu), because if not then the child would get sick." (caregiver, on-time)*

The caregivers from the on-time vaccination group mentioned that the experience of giving vaccination to their older children influenced them to bring their younger ones to get vaccinated. They claimed their children were healthy and did not experience side effects after vaccination.

*"(The experience with) my first child was good, and since then I have never doubted (of vaccines). If*

*there were (children who got) sick, the symptom was mild." (Caregiver, on-time)*

***Efforts been carried out and needed to increase immunization coverage***

Information on the importance of vaccination, benefits, and immunization schedule was the most available and passed on to caregivers. The information includes the importance of vaccination to prevent childhood disease, vaccination to improve immune systems, and the types of vaccination for children.

Most information on vaccination is received through socialization or educating caregivers at the healthcare facility or *posyandu* and home visits. A few participants mentioned that health centers had developed banners and posters. However, healthcare professionals argued that this approach was ineffective because communities frequently removed or didn't read the material. Some participants also mentioned information from the mosque's speakers (*toa masjid*), especially regarding the vaccination schedule. A few participants said that the cadres often give a note on the front of the KIA book as a reminder of the vaccination schedule. Health workers and village cadres had WhatsApp groups as a channel to communicate to conduct their work in communities, but this channel was not used to give caregivers information. Some caregivers mentioned they did not have access to the internet, and a few did not possess handphones.

Even though information on the importance of vaccination and the benefits of vaccination was available, most participants believed that this information needed to be shared regularly and target a more expansive audience. Healthcare workers, including village midwives, doctors, and nurses, were the most trusted sources giving information on childhood vaccination. Most participants mentioned they preferred education sessions held by healthcare workers as a channel to receive information on childhood vaccination. Some caregivers said they would like to read the information through their phones. Using the mosque speaker (toa masjid) was also mentioned to spread the information to a broader audience.

*"Yes, more information on how children should get vaccinated." (Caregiver, on-time)*

*"I prefer (received/ got information) from my handphone. I rarely read newspapers, but often check my handphone." (Caregiver, missed immunization)*

***Factors that would promote vaccination uptake***

The involvement of the husband or child's father in taking their children to get vaccinated is vital since, in the majority of families, the husband is the decision maker. Moreover, raising awareness among fathers is needed to influence their decisions for their children's health. Some participants stated that the husband or child's father needs to be involved in education sessions or socialization on childhood vaccination.

*"(I don't think) that's all, the reason is that the husband did not allow it. In the future, it would be good not only for mothers who receive information on childhood vaccination but also the father, so that the children whose mother is willing to take them to get vaccinated, can get it (with the permission of the father)." (Healthworker)*

The involvement of influential figures, such as village heads or religious leaders, was also important in influencing communities, especially caregivers, to bring their children to get vaccinated. They could be a champion who supports the campaign for routine vaccination in communities. Similar to the husband/ child's father, the influential figures need to get awareness raising on the importance of vaccination, its benefits, and the side effects.

*"(I think) the most influential figure is geuchik (village leader). During The BIAN session (catch up immunization session) last time, geuchik's son got vaccinated and the caregivers would follow it, even though only a few of them (that visit Posyandu to get a jab). If it was only us (health care workers) it was not enough, caregivers would be unmotivated to listen to us, but maybe for the new figure (other influential figure) they would be following so." (Health worker)*

In terms of method, some caregivers mentioned the utilization of injections in vaccination that they perceived would cause more pain to their children and cause side effects. Some participants said it would be good if the vaccine delivery method did not use syringes or oral instead.

*"Is there any other method without injection? Because of that, people got scared to take their children to get vaccinated." (Caregiver, missed immunization)*

*"… (from the story of parents) should provide a vaccine that does not cause pain (for children), for example, after getting a jab, children would feel pain on the thigh. If it is possible, we don't use*

*injections but oral methods like polio." (Healthcare worker)*

Most healthcare workers believe in encouraging caregivers to bring their children to get vaccinated; it needs to be made mandatory by the government, for example, as a prerequisite for children to enter primary school. A few mentioned that, learning from the COVID-19 vaccination process, the established regulation to make vaccines mandatory for travel was quite effective in influencing communities to get vaccinated.

*"..(we need) pressure, for example, like the COVID-19 vaccine, if they did not get vaccinated, then the activities in communities could not be run. And in the end, many people got vaccinated. For routine vaccinations, we do not have any pressure. For example, this vaccination as a prerequisite for entry into schools.." (District health Office staff)*

## DISCUSSION

Childhood immunization is one of the most efficient ways to protect people from communicable diseases. In Indonesia, some areas with immunization rates for children continue to be below ideal levels despite efforts to raise them, including Aceh Province. East Aceh is one of the districts that had a low rate of routine vaccination of children during the pandemic situation.

Implementing vaccination services to achieve the required results is challenging since it requires collaboration at different levels and under different conditions. Effective communication, relationships at all levels, conduct, logistical assistance, and financial backing, among other pertinent aspects, may contribute to greater routine vaccine uptake [14].

This study found that the situation in a pandemic, such as conducting health protocols, does not really affect caregivers' intentions to bring their children to get vaccinated. Instead, the COVID-19 vaccine program's implementation has influenced their perspective on routine vaccination. In Aceh, there was a high refusal rate for COVID-19 vaccination, which impacted the low uptake of vaccination. Many caregivers did not bring their children to vaccination since they received the COVID-19 vaccination, instead. According to previous studies [15,16], this phenomenon is closely related to halal and haram vaccines. It is a belief that spread among communities not to give vaccinations since they contain pork, and it became a challenge for health services to deliver immunization programs. It was also found in various studies [17]–[19] that the issue of haram vaccines influences caregivers' intentions to refuse routine vaccination for children. Caregivers' education is closely related to this [17], where mothers who have better educational backgrounds are more likely to immunize their children [9].

This study found that the husband or child's father has a big role in determining whether the children can get vaccinated. This study is consistent with some studies [15], [16]. The microsystem in the socio-ecological model shows that husbands, as the head of the family, are considered the main decision maker. Wives might anticipate assistance and resources from their husbands, but they must accept their decisions as final. This extends to vaccination decision-making. Their decision to refuse vaccinations for their children was encouraged by having spouses who did the same.

Even though the husbands hold the biggest role in decision-making in the family on vaccination, the perspective of influential figures is often considered important since they are usually a source of practical advice for families with young children. This study found a lack of support from influential figures to influence caregivers to get their children vaccinated. In two different ways, this group may influence attitudes and behavior related to vaccinations. First, due to their social standing, they can directly offer vaccine advice (or even directives), which are taken seriously. Additionally, they could serve as a role model for other community members to follow or indicate to main caregivers and other family members the appropriate behavior in the community [15]. Involving multiple people in the influencing and decision-making process for vaccination suggests that "whole community" intervention approaches, which motivate entire communities to work towards a desired endpoint and have had some success in other policy domains and settings, may be appropriate to promote vaccination in East Aceh.

This study also found that caregivers tend to worry about the side effects of the vaccine, especially if the vaccine uses a syringe. A false rumor about vaccination that circulates in communities is the cause of it. This rumor becomes challenging for healthcare workers because many hoaxes spread through social media or messenger applications. It has been demonstrated in various qualitative investigations that moms who fear vaccine side effects either decline or postpone receiving further vaccines [17]. Vaccines are generally well accepted; however, no vaccine is completely risk-free. Thus, it has been shown that when a small number of children experience modest

side effects, their moms may reject having them receive additional vaccines owing to ignorance [18–20]. As a result, raising awareness and providing moms with accurate information is crucial to immunization.

One of the things that can encourage parents to get their children immunized is being reminded about the schedule and having better knowledge about vaccinations. The role of the village midwife is very important in this reminder process, where the village midwife is also considered a trusted source to provide health information to the community. It was also shown that caregivers tend to ask for advice or seek information from people who are considered professionals in their field [21,22]. Education and taking time with patients have been shown to result in modest improvements in parents' attitudes about immunization. Understanding the reasons behind parents' queries can help pharmacists, doctors, nurses, and other healthcare professionals connect with patients on a more personal level and address the topics that matter most to parents. All healthcare professionals should try to be informed about the recommended vaccinations and comprehend the rationale behind those recommendations. With this knowledge, patients will have direct access to trustworthy information that will enable them to make the best decisions for their families.

## CONCLUSION

This study focuses on recommendations for parents on bringing their children to get a vaccination, information sources, and reasons why some parents choose not to vaccinate their children in East Aceh, especially in the pandemic situation. Acknowledging and addressing these concerns is important when counseling parents who refuse vaccination. This study provides a beneficial resource for health workers and stakeholders to improve routine vaccination programs, especially in a pandemic situation. The results of this study are predicted to be a reference for developing a health campaign strategy for engaging caregivers and parents to bring their children to get vaccinated.

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