

Preserving Maternal and Child Health Care during COVID-19: A Case Study in South Aceh  
District, Indonesia

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A thesis  
submitted in partial fulfillment of the  
requirements for the degree of  
Master of Public Health

University of Washington  
2021

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Program Authorized to Offer Degree  
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**Abstract**

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**Background:** In Indonesia, particularly in rural areas, the majority of maternal and child health (MCH) service is provided at community-based integrated posts called *Pos Pelayanan Terpadu (Posyandu)*. The COVID-19 pandemic has limited the provision of essential services in the community, including *Posyandu*. This has the potential to disproportionately affect the health of women and children. To better understand the impact of the COVID-19 pandemic on MCH service provision in *Posyandu*, we evaluated the barriers and facilitators to MCH service provision through *Posyandu* from one district in Indonesia.

**Methods:** The study used a literature review, analysis of health system data on changes in *Posyandu* utilization indicators, and in-depth interviews (IDI) with 7 *Posyandu* community health workers (CHW) and 4 health workers from one sub-district health center (*Puskesmas*). A conventional content analysis approach was used to analyze qualitative data from the in-depth interviews. A mixed-method approach of quantitative and qualitative data was used to create a comprehensive description of service delivery in *Posyandu* during the COVID-19 pandemic.

**Results:** The review of routine annual data found no substantial change in MCH services utilization during the COVID-19 pandemic. The majority of service indicators did not show a decrease from 2019 to 2020, except for coverage of complete childhood immunization which had been decreasing prior to 2019. Among the CHWs who participated in IDIs, the majority of *Posyandu* remained operational, with necessary adjustments to adhere to newly introduced COVID-19 control measures. Adjustments to service provision included mandating mask use, applying room maximum occupancy, physical distancing, and focusing efforts on home health visits. CHWs reported trying hard to keep *Posyandu* operational, feeling that it was their duty, as health workers, to provide these necessary services to their community even during a pandemic. CHWs from *Posyandu* that continued service provision cited individual CHW initiatives, support from local leaders, and good communication between *Posyandu* and *Puskesmas* as key facilitators. Despite goals of remaining operational, CHWs cited many barriers to continued service provision, including losing financial resources, opportunities for capacity building, and opportunities to advocate *Posyandu* needs to stakeholders. CHWs at *Posyandu* also described an overall lack of

guidance from health workers at *Puskesmas* and the District Health Office (DHO). CHWs noted that while these barriers existed prior to COVID-19, they were exacerbated by the pandemic.

**Conclusion:** *Posyandu* service availability during early COVID-19 varied, although the majority remained operational through individual CHW initiatives, communication between CHWs and health workers in *Puskesmas*, and support from local leaders. Given their importance in the community, particularly for women and children, there is a need to address barriers to *Posyandu* operation and ensure MCH service sustainability during health emergencies.

*Keywords: maternal and child health, primary health care, COVID-19 pandemic, Indonesia*

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## **Abbreviations**

<b>BKB</b>	<i>Bina Keluarga Balita</i> (Mother Support Group program)
<b>CHW</b>	Community Health Worker
<b>COVID-19</b>	Coronavirus Disease 2019
<b>DHO</b>	District Health Office
<b>IDI</b>	In-depth interview
<b>MCH</b>	Maternal and Child Health
<b>MoH</b>	Ministry of Health
<b>PHO</b>	Provincial Health Office
<b>Puskesmas</b>	<i>Pusat Kesehatan Masyarakat</i> (Sub-district primary health clinic)
<b>Posyandu</b>	<i>Pos Pelayanan Terpadu</i> (Integrated Service Post)

## **Background**

The COVID-19 pandemic has devastated the lives of millions around the world. Besides the direct burden caused by disease, the pandemic has disrupted access and delivery of social, economic, and public services. In the health sector, physical distancing guidelines to protect against COVID-19 transmission have limited the provision of essential services in the community. This has the potential to disproportionately affect vulnerable groups, such as women and children, who rely on these services for routine care and may lack resources to seek care elsewhere. In Indonesia, particularly in rural areas, the majority of maternal and child health (MCH) services are provided at community-based integrated posts called *Pos Pelayanan Terpadu (Posyandu)*. *Posyandu* are among public services which have been heavily impacted by the COVID-19 pandemic. Limiting the provision of routine health services might result in new nutrition and health problems in the future.

### **Indonesia's Primary Health Care System and *Posyandu* History**

Following the Alma-Ata declaration on Primary Health Care in 1978, Indonesia has focused on providing health services to urban and rural communities through sub-district level health clinics (*Pukesmas*) and a network of integrated service posts at the village level (*Posyandu*). The integrated posts are run by the community, typically women who reside in the village, serving as community health workers (CHW). The CHWs carry out monthly outreach and provide essential services for women and children, including 1) maternal and child health care, 2) nutrition, 3) immunization, 4) family planning, and 5) diarrhea prevention and control. As a vast archipelago, this approach was highly successful in removing geographic barriers to healthcare access (Leimena, 1989).

The *Posyandu* program has shown substantial contributions to Indonesia's maternal and child health improvement. Shortly after initiation, the services provided by health workers and CHWs in the posts were able to cut back the national maternal mortality rate and undernutrition among children across the country (Leimena, 1989). Furthermore, a study shows that the availability of *Posyandu* has a protective association with childhood obesity in Indonesia (Andriani, A., et al, 2016). The presence of *Posyandu* has also been shown to be crucial for expanding childhood immunization uptake; CHWs integrate with the community, gain their trust, and encourage parents to immunize their kids (Widayanti, et al, 2020).

### ***Posyandu* during COVID-19 Pandemic**

The COVID-19 pandemic physical distancing guidelines have affected access to *Posyandu* operation, hence the community's access to health care. While a report from the MoH and UNICEF Indonesia shows minor disruption in *Pukesmas* availability (less than 7% closure), nearly 71% of the *Posyandu* facilities surveyed were reported closed from April to May 2020. At the *Posyandu* level, 86% of health facilities reported that they suspended growth and development monitoring,

55% reported suspension of immunization services, 46% reported a disruption of vitamin A distribution and 46% reported suspension of antenatal care services. The main reasons stated for suspension of services included community safety concerns (64%), health worker concerns (43%), health worker illness (3%), and adherence to local physical distancing policies (36%) (UNICEF Indonesia, 2020). Following reported *Posyandu* closures, coverage of routine immunization such as measles, rubella, and diphtheria were declining, decreasing by more than 35% in May 2020 compared to the same period the previous year (MoH and UNICEF Indonesia, 2020).

While the closures of *Posyandu* potentially undermined MCH services provision to the community, it was also considered by the MOH as a necessary step to take to prevent COVID-19 spread. Extra efforts needed to be taken by all parties to survive the pandemic and reduce transmission, while at the same time, to provide continued access to health care for the population in need. Indonesia's public health system is governed in line with a decentralized system, with central, provincial and district government responsibilities. During COVID-19, The Ministry of Health (MoH), as the coordinator of the nation's health sector, is responsible for establishing guidelines and ensuring resource mobilization to district and facility levels to adhere to policies and regulations. The District Health Office (DHO) plays a role in providing technical assistance and supervision, resources, including funds to health facilities for *Puskesmas* and *Posyandu*, while complying with COVID-19 precautions. Lastly, *Posyandu* CHW had an important dual role: to carry out *Posyandu* activities such as growth monitoring and nutrition counseling while simultaneously educating people about protecting themselves and their families from contracting COVID-19. The closure of *Posyandu*, and the expansion of CHW responsibilities to include work related to COVID-19, raises obvious concerns regarding the impact of the changes on MCH services in Indonesia.

## **Study Objectives**

The primary objective of this study was to identify and describe the impact of the COVID-19 pandemic on MCH service provision in *Posyandu* in the South Aceh District of Indonesia. The South Aceh District served as a case example to understand barriers and facilitators to the provision of MCH services during health emergencies.

## **Specific Aims**

The specific aims of this study were to:

1. Describe maternal and child health service availability and utilization in South Aceh District before and after the COVID-19 pandemic through secondary data review
2. Characterize experiences, barriers, and facilitators to provision of services in selected *Posyandu* in South Aceh District during COVID-19 at the facility level through conducting individual interviews with community health workers

## **Methods**

### **Study Design**

This study used a mixed methods design, combining quantitative and qualitative approaches. The data sources utilized included: literature review, analysis of health system data on changes in *Posyandu* utilization indicators, and in-depth interviews (IDI) to provide personal narratives of experiences (Sandelowski, 2000).

### **Study Population**

To capture public service implementation in a decentralized health system, this study was conducted in a single district in Indonesia, South Aceh. This district, and included sub-districts, were purposely chosen based on accessibility to key informants. South Aceh is one of 22 districts in Aceh province, located in the westernmost part of Indonesia. The district has a population of approximately 200,000, with mostly rural areas. In 2019, there were 25 *Puskesmas* and 320 registered *Posyandu* in South Aceh (South Aceh DHO, 2019).

### **Data Collection**

The study employed both primary and secondary data collection. Quantitative data was abstracted from publicly available health indicator data at the district level on maternal and child health indicators relating to *Posyandu* activities (Appendix 1). The study also included reviewed published literature related to the COVID-19 response and health service disruption in Indonesia, as well as policy and guideline documents established by the MoH and DHO on *Posyandu* implementation following the pandemic restrictions during March 2020 to April 2021.

Qualitative interviews were conducted between January and April 2021. Snowball sampling was used to recruit participants for IDIs. Three initial participants were identified from the sub-district where the PI had an established relationship. *Posyandu* CHW informants represented seven of the eighteen sub-districts in South Aceh. IDIs were conducted by the PI over phone in the Indonesian language. A semi-structured guide was used to facilitate IDIs, to ensure consistency in question content and phrasing (Appendix 2). IDIs focused on understanding experience, barriers, and facilitators, and specific probes were included in the guide to provide a deeper understanding of specific adaptations to MCH services during COVID-19. IDIs ranged in length from 30 to 45 minutes. The interviews were recorded with participants' consent and then transcribed in Indonesian by study volunteers.

### **Data Analysis**

Analysis included evaluation of quantitative and qualitative data. Quantitative data were analyzed descriptively to compare service utilization indicators before and during the COVID-19 pandemic. Trends were summarized and displayed in a table. Qualitative data were analyzed using a conventional content analysis approach (Hsieh, 2005). ATLAS.ti 8 Windows software (Scientific

Software Development GmbH) was used to support data management and analysis. Code development used a combination of inductive and deductive approaches. Deductive codes were informed by literature reviews, the interview guide, and quantitative indicators assessed; inductive codes were developed directly from the transcripts through open coding. Coding was conducted by the PI by applying codes on the same transcript at different times to ensure reliability. Emerging concepts and themes were discussed and verified with two CHW informant.

The study used both within-case and across-case approaches for theme identification (Ayres, 2003). Within-case analysis explored health services provision and adaptation at the *Posyandu* level while across-case analysis deepened understanding of the larger impact of COVID-19 on service provision within the broader decentralized health system context. Codes were categorized into themes by looking at repetition within and across cases, as well as similarities and differences across cases. Queries were used to extract textual data supporting identified themes. Analysis was conducted in Indonesian, and themes and quotations were translated into English for publication purposes.

### **Ethics**

This study was reviewed by the Institutional Review Board (IRB) of the University of Washington and received an exempt determination.

### **Study PI Positionality**

This study was conducted as a requirement for the degree of Master of Public Health program at the University of Washington. The principal investigator (PI) of this study is a female graduate student at the University of Washington from Indonesia. The PI previously worked on *Posyandu* service delivery strengthening in South Aceh and has an established relationship with some of the study participants. Data collection and analysis were conducted by the PI and a small team in Indonesia, who assisted with key informant recruitment and transcription of the interviews.

## **Results**

### **The Government response to MCH service during COVID-19**

As a response to the challenge of providing MCH services during the pandemic, MoH established new guidelines for service providers as well as for the community (Djalante, et al, 2020; UNICEF Indonesia, 2020). Ideally, new guidelines or policies would be disseminated through coordination lines from the MoH, Provincial Health Office (PHO), DHO, and health facilities which include hospitals, *Puskesmas*, and *Posyandu* (Mahendradhata, 2017).

The guidelines that the MoH published through May 2021 have included:

1. Guidelines for Maternal and Newborn Health Services during COVID-19 New Adaptation Era
2. Guidelines for Family Planning and Reproductive Health Services during COVID-19
3. Guidelines for Pregnant Women, Postpartum and Low Birth Weight in the Era of the COVID 19 Pandemic
4. Guidelines For Child Health Services during COVID-19 Pandemic
5. Technical Guidelines for Immunization Services during the COVID-19 Pandemic
6. Maternal and child health education materials

### **MCH Service Utilization during COVID-19 Pandemic**

Routine data on MCH indicators from DHO were compared over time to identify trends in *Posyandu* service utilization before and during COVID-19. Table 1 shows MCH service indicators that are provided in *Posyandu* from 2017-2020.

**Table 1. MCH Services Utilization in South Aceh 2017-2020**

<b>Indicators</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Child growth monitoring	88%	82%	92%	94%
1st ANC visit	97%	89%	88%	91%
4th ANC visit	95%	80%	86%	86%
Complete child immunization	82%	72%	65%	59%
DPT 3 + HB 3	82%	74%	69%	56%
Polio 4	84%	74%	64%	59%
Measles	84%	75%	67%	63%
Iron tablet distribution	94%	78%	76%	84%
Vitamin A distribution	90%	98%	96%	96%
Skilled birth attendance	95%	84%	81%	88%
Exclusive breastfeeding	66%	54%	64%	69%

*Source: South Aceh Health Profile 2017-2020*

Overall, coverage for services in South Aceh did not substantially decrease in 2020 during the time of the COVID-19 pandemic closures. Coverage for activities that take place in *Posyandu*, such as children’s growth monitoring, first and fourth ANC visits, iron tablet distribution to pregnant women, and vitamin A distribution to infants and children, appeared to remain constant in spite of the changing circumstances caused by COVID-19. The proportion of delivery assisted by skilled birth attendance and exclusive breastfeeding was already declining in 2018 and 2019, prior to the pandemic, and rose slightly during the closures during the pandemic. Complete childhood immunization coverage data showed a consistent decrease from 2017 to 2019, and this trend continued during the pandemic with an additional decrease in coverage observed during 2020. The trend for declining immunization coverage was consistent across immunization types, including DPT 3 + HB 3, polio 4, and measles.

### **Experiences, barriers, and facilitators to MCH service provision during COVID-19 pandemic**

A total of eleven IDIs were conducted with seven CHWs from different sub-districts and four health workers from one *Puskesmas*. The study geographic areas are shown in Figures 1a and 1b. All study participants were women, and the majority had a high school or diploma education. Characterization of participant’s experiences identified three key themes related to service delivery during the COVID-19 pandemic.



**Figure 1a. Aceh Province Map**  
[https://en.wikipedia.org/wiki/South\\_Aceh\\_Regency](https://en.wikipedia.org/wiki/South_Aceh_Regency)



**Figure 1b. South Aceh District and IDIs**  
<https://petatematikindo.wordpress.com/2013/04/21/administrasi-kabupaten-aceh-selats>

***The majority of Posyandu continued operations during the pandemic, with modification to adhere to COVID-19 control measures***

Out of seven CHWs, only two reported suspensions of services completely, which included halting monthly outreach activities for two to three months. Outreach activities were stopped in response to an order from *Puskesmas*, aiming to avoid crowds and stop virus transmission. The remaining CHWs reported continued implementation of *Posyandu* as usual since March 2020, but with the addition of new safety precautions, which they refer to as “health protocol”.

*“During the pandemic, everything stays the same. The only difference is that when the people come, they need to wear masks, then they cannot gather at the Posyandu. When you're finished, you need to go straight home.... No, we never postponed activities, [they were] always there” (CHW, Kluet Timur)*

*“Before COVID-19 pandemic, all the women went straight into the room. But after the pandemic, we made regulations, not everyone can go inside at once. We made the rules, a maximum of 3 people. You are also required to wear a mask .... Yes, we force them to queue.” (CHW, Kluet Timur)*

These adjustments required the CHWs to do extra work to provide these same services to the community. CHWs described needed to stay longer than normal at the *Posyandu* because of maximum occupancy allowed inside the room and physical distancing regulations, and the need to ask attendees to queue.

*“It takes longer for people to come. Because usually Posyandu is open for about 2 hours or 3 hours or less, but during a pandemic, this is a bit longer.” (CHW, Samadua)*

While some found the queueing systems to be burdensome, other informants appreciated that the queue system made services more organized and enabled them to work more effectively, noting an interest in maintaining some adaptations post COVID-19.

During the pandemic, CHWs reported doing home visits to reach those who did not attend *Posyandu*. This practice was done even before the pandemic, but a midwife informant described how they focused more on home visit activities during the first months of the pandemic. Home addressed COVID-19 fears within the community that prevented them from attending *Posyandu*.

*“So, we did not focus on the Posyandu, but rather door to door, because people were afraid to leave their houses at that time. Moreover, in Kluet Timur there are positive (COVID-19) cases and deaths.” (Midwife, Kluet Timur)*

CHWs reported that *Posyandu* implementation during the pandemic needed permission and support from the village leader. One CHW described that their village leader's support was absent during the first months of the pandemic, and she was told to close the *Posyandu*. However, the CHW took initiative to ensure continuity in care, offering the services provided by *Posyandu* at her house with help from other CHW members.

*“At that time our Posyandu didn't open because there was no permission from Pak Keuchik [village leader] .... Finally, we took the initiative ourselves, I invited other CHW members. We told mothers if you want to attend Posyandu, we do it at my house, please come one by one, not in a group or crowd.” (CHW, Samadua)*

For *Posyandu* that remained opened, not all services were consistently provided during the pandemic. One participant described that during the first months of the pandemic, they only provided weight and height measurement, and postponed ANC and immunization visits. Community members seeking these services had to attend primary health clinics or midwife private practices in the village.

*“There was no other health service. Nothing. Usually, we have 5 tables: registration, weighing, recording, and other health services [ANC and immunization] ... I immediately weighed the children, then I told them to go home. Because the people at the Puskesmas were not coming too.” (CHW, Samadua)*

Besides individual health services, *Posyandu* is utilized as a platform to deliver group health education. COVID-19 restrictions on crowds limited group gatherings and led to suspension of community education campaigns and counseling. These programs cover content beyond maternal and child health issues, focusing on health topics such as hygiene and sanitation, communicable and non-communicable disease, and dental hygiene.

*“The Posyandu was held but we didn't gather, it's not like what it used to be. There used to be counseling from the Puskesmas, but not this year.” (CHW, Kluet Utara)*

COVID-19 also suspended provision of a *Posyandu* program expansion known as *Bina Keluarga Balita* (BKB), a support group for mothers that provides a safe space to discuss their children's growth and development. Two CHWs described that they have not been able to meet since the pandemic started.

*There was no BKB meeting, no education at the Posyandu. It was not recommended to gather. Usually after measuring weight, after finishing immunization, mothers continue to BKB meetings. But not now.” (CHW, Kluet Utara)*

### ***Reduced resources, training, meetings, and guidance posed barriers to implementing Posyandu activities***

Informants described shifting financial resources during COVID-19 pandemic, which impeded their ability to provide continued services. *Posyandu* usually receive financial support from the village for operation, including incentives for CHWs and supplementary food for the community. CHW informants describe a lack of financial support as a challenge affecting *Posyandu* prior to COVID-19, that has been further affected by the pandemic. Two participants shared that village funds for *Posyandu* were reallocated during the pandemic to items supporting the COVID-19 response, such as to provide masks for the community.

*“The budget for cadre’s incentive should have been available at the beginning of the year. Suddenly COVID came, and they needed to distribute masks. So, the money went to COVID.” (Midwife, Kluet Timur)*

*Posyandu* CHWs normally participate in capacity building trainings, focused on improved service delivery, data recording and reporting, as well as community health issues in general. Trainings are usually held by inviting the CHWs to come to *Puskesmas* or *Posyandu* after routine services are done. While CHWs felt *Puskesmas* had a responsibility to provide them with these trainings, they were not offered during the pandemic.

*“There were training by people at the health clinic. Training to measure the child's body, how to do it precisely, without mistake. Usually, we do it at the end of the year, we meet together.” (CHW, Sawang)*

*Puskesmas* are responsible for holding a cross-sectoral quarterly meeting that brings together leaders or representatives from village and sub-district governments. This forum aims to improve the function of the health clinic through discussing health issues and fostering community participation. The forum provides an opportunity for each stakeholder to communicate progress towards health goals and identify needs. During the first month of the pandemic, cross-sectoral meetings were postponed and CHWs lost the opportunity to advocate for needed resources for implementing *Posyandu*, particularly during the pandemic.

*“In the meeting, CHWs, the Head of sub-district, the Head of Puskesmas, the Military, everyone gathered. Before the pandemic, all of us came to Puskesmas. [Right now] we were not able to go since the meeting was postponed.” (CHW, Kluet Utara)*

Timely receipt of new guidelines was critical for implementation of new safety measures and revised provision of services during COVID-19. Midwife informants mentioned receiving communications noting changes in health service delivery during the pandemic from the DHO, including an online training regarding COVID-19 vaccine campaign preparation and technical

guidelines sent via *WhatsApp* group chats. However, poor internet connection made implementation of procedures outlined in the new guideline challenging.

*“We can manage it because I acted fast, I read the technical guidelines quickly, and we are more prepared. We just have problems on the internet. We could not enter the data, because the internet connection is not good.” (Midwife, Kluet Timur)*

In contrast, CHWs described receiving only informal communications through online messaging or telephone, and no CHW informants mentioned receiving guideline documents or formal letters regarding new adjustments during the pandemic.

*“They said there was an order from the District Health Office to the health center officers. But we don’t know anything, because there was no letter circulated to us, we didn't accept it.” (CHW, Samadua)*

For CHWs, lack of communication with health workers from primary health clinics and the DHO left many initially unaware of new guidelines and how they should be adjusting services. CHWs noted receiving specific directives about adaptations for some activities, but others remained uncertain.

*“There are no regulations, no order. Only told us if no children are going to the Posyandu, we must go to their house, it is mandatory.” (CHW, Sawang Sub-district)*

### ***Strong support systems and belief in their essential role facilitated Posyandu implementation***

Cross-sectoral collaboration played an important role in *Posyandu* implementation. When village leaders were present and showed their commitment to the service provider, providers felt supported in delivering services. Informants felt supported by village leaders who provided personal protective equipment (such as masks, face shields, gloves, and equipment for handwashing) needed to implement *Posyandu* during COVID-19. CHWs valued that support was not only for the CHWs, but also for the community, and enabled women and children to feel safer when attending *Posyandu* during the pandemic.

*“Our Keuchik (village leader) helped us. They provided a station to wash hands, distributed masks, and reminded people to keep their distance. Indeed, during the pandemic it was helpful.” (CHW, Kluet Timur)*

One informant reported that the village leader's wife (*Ibu Keuchik*) was actively involved in helping CHWs implement *Posyandu*.

*“In the past, cross-sectoral work was not good .... the Posyandu was still difficult. Ibu Keuchik [Village Leader's Wife] was not very active. Now, from the village side and the Ibu Keuchik, in the Posyandu sector, they are more supportive.” (Midwife, Kluet Timur)*

Collaboration between midwives and CHWs also positively influenced *Posyandu* implementation during COVID-19, helping solve problems that arose when adapting service provision.

Informants felt a strong sense of responsibility to provide health services for women and children. They described that *Posyandu* are important and need to be implemented. They serve as a center for monitoring children's growth, are the first point of contact for sick children, and the place where people can get supplementary food, health education, and counseling when needed. Despite higher risk of getting infected by COVID-19, their belief in their overarching purpose provided motivation and drive to continue as a frontline healthcare worker.

*“We cannot say that we were afraid, it is our responsibility. We still need to provide service, we always open Posyandu. The children deserve health care.” (CHW, Kluet Utara)*

CHWs also felt a sense of responsibility to the health workers in *Puskesmas*. Opening *Posyandu*, capturing the data needed by *Puskesmas*, allowed CHWs to feel a sense of accomplishment at meeting their objectives, and helping health workers as *Puskesmas* meet their objectives of ensuring healthy women and children.

*“We keep telling the women, please attend Posyandu. If you skip once or several months, we cannot monitor the growth and development of your child.” (CHW, Kluet Timur)*

## **Discussion**

MCH service utilization indicators suggest that most services did not substantially deteriorate in 2020, during the time of the COVID-19 pandemic shut down. Only complete childhood immunization coverage data showed a significant decrease throughout 2017 to 2020, before and during the years of pandemic-related closures. This finding is consistent with the results from IDIs where the majority of *Posyandu* were still operating. They appeared to have made the necessary adjustments to adhere to the disease control measures and yet maintained most of their key activities. Nevertheless, loss of resources and lack of guidance were perceived as barriers to the *Posyandu* implementation. Although persistent problems remain and may be exacerbated by the current new waves of COVID, individual CHW initiatives, communication with health workers at

*Puskesmas*, and support from local leaders were described as facilitators to providing care in *Posyandu* during the pandemic.

The finding of no substantial change in most of MCH services was similar to a survey which looked at MCH service provision during the first months of COVID-19 pandemic in several countries (Ahmed, et. al, 2020). The study showed that disruption of services was found in several countries, but there were no generalized changes in MCH indicators from December 2019 to June 2020. Comparable to the immunization coverage in South Aceh, childhood vaccination was found to be the most disrupted service among countries surveyed, where the drop reached 31% in Liberia, 13% in Nigeria, and 11% in Afghanistan. While some countries noted disruption in MCH service utilization for at least a month before they improved gradually, this study did not observe monthly data to be able to assess the same indicators. In contrast, the MCH service utilization finding differed from the national rapid survey of health facilities closures during the first two months of pandemic (UNICEF Indonesia, 2020). Nonetheless, the cause of the difference was elucidated by our IDIs result.

Our results suggest that individual initiative was clearly one of the drivers for CHW to provide service in *Posyandu* during the pandemic. The initiatives came from CHWs' awareness of *Posyandu* importance and sense of responsibility to do their duty as health educators who are closest with the community. This finding is relevant with studies which show presence, commitment, and motivation of CHW have a significant effect on the performance of *Posyandu*, as well as MCH services indicators such as immunization coverage (Bidayati, 2017; Holipah et al., 2018; Widayanti, 2020). On a related note, well-supported and empowered community health workers are potentially key to promoting community-based health program implementation, including *Posyandu* activities (McCollum, et. al, 2018).

The internal motivation of CHWs needs to be supported by resources to keep *Posyandu* operational during COVID-19 pandemic. On the other hand, the resources mobilization was limited, including funds reallocation for COVID-19 control and training from *Puskesmas*. This appeared to be a problem since even before the pandemic, a large number of *Posyandu* CHW in Indonesia were found to be undertrained (Setiawan and Christiani, 2018). Long distanced learning through online communication platform may be a potential solution to train CHWs, as our findings present that the method was utilized by the CHWs. Conversely, our study found that decent internet connection remained a challenge for CHWs in South Aceh.

The communication between DHO, *Puskesmas*, and *Posyandu* was recognized to be vital to coordinate roles and responsibilities in the daily operation and particularly to maintain service during health emergencies. The country's decentralized health system put DHO responsible for the management of district/city hospitals, *Puskesmas*, and associated sub-district facilities, such as *Posyandu* (Mahendradhata, 2017). In the COVID-19 pandemic context, coordination among these

entities is needed to disseminate new policies and guidelines of service delivery and treatment, health measures, and education material to be delivered to the community. In relation to the lack of communication and guidance finding, a study which compared experiences of health decentralization in Kenya and Indonesia found that the insufficient and unclear regulation from the district government to health facilities has been one of main challenges in both countries' health care system (McCollum, et. al, 2018). More research is needed to contextualize the coordination line of decentralized health system to *Posyandu* program and MCH in primary care providers.

The idea of *Posyandu* is a community-based health provider. The services are organized by the people and governed under the village government's supervision. Therefore, the presence and involvement of community leaders is crucial to the service provision, both in a normal state and especially during a disease epidemic. Support from other sectors is also as important to facilitate *Posyandu* operation as well as to mobilize community to keep safety precautions during pandemic. At the facility level, various sectors who play roles include the sub-district head, religious leaders, the police, and military units. Additionally, district level entities which utilize the post as a public service delivery platform, such as the Family Planning Agency and Village Empowerment Office would be valuable aids to sustain the *Posyandu* operation.

### **Limitations**

The findings of this study may not be generalizable to other districts in Indonesia due to the varying context between different region and small sample size of key informants. Deeper analysis across a wider range of districts in Indonesia and with more interviews and involvement of policymakers from the government would have shed more light on the health system resiliency during a global pandemic. Despite the limitations, this study provides insights on the implementation of MCH services provision in *Posyandu* during the COVID-19 pandemic in South Aceh District by sampling the study population from different sub-district units.

### **Acknowledgements**

I would like to extend my gratitude to my supervisors, Dr. Steve Gloyd and Dr. Kristin Beima-Sofie from the University of Washington for their mentorship and guidance. I would also like to thank study participants, community health workers and health workers in South Aceh, and South Aceh District Health Office. Without their support, this publication would not have been possible.

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**Appendix 1. MCH indicators relating to *Posyandu* activities**

	<b>Performance</b>
1	Proportion of children under 5 weighed
2	1st ANC visit
3	4th ANC visit
4	Skilled birth attendance
5	Immunization coverage
6	Iron tablet supplementation coverage
7	Vitamin A distribution to children u-5 coverage

Adapted from *Posyandu* stratification assessment

## Appendix 2. In-depth interview guide

### Preserving MCH service during COVID-19 and maternal and child health care: a Case Study in South Aceh District, Indonesia

#### **Respondent Information**

Name	
Position	
Interview Date	
Sex	Male Female
Age	

#### **Study Introduction and aims**

The COVID-19 has caused devastating impacts in almost every aspect of life. Besides the direct burden of the disease, the pandemic has disrupted social, economic, and other necessities including public service. In the health sector, with the COVID-19 restriction, the frequency of essential services in the community has consequently decreased. This has the potential to hinder vulnerable groups, such as women and children from getting optimal health care. In the longer term, this reduced frequency of services will harm the health status of women and children, as well as result in new nutrition and health problems in the future. In Indonesia, the frontline of maternal and child health care services is done at a community-based health post called *Posyandu*, whose continuity has also been heavily impacted by the pandemic.

The primary objective of this study is to describe and identify the impact of the COVID-19 pandemic on MCH service provision in *Posyandu*. Furthermore, this study will use one district as a case study to understand the barriers and facilitators to the provision of MCH services during health emergencies.

#### Specific Aims

The specific aims of this study are to:

1. Describe maternal and child health service availability and utilization in South Aceh District before and after the COVID-19 pandemic through secondary data review
2. Characterize experiences, barriers, and facilitators to provision of services in selected *Posyandu posts* in South Aceh District during COVID-19 at the facility level through conducting individual interviews with community health workers

## Interview Questions

### Questions for *Puskesmas* interview:

1. How have the pandemic impacted maternal and child health service in *Posyandu*?
2. What support have you received from DHO to provide service, particularly in *Posyandu* during pandemic?
3. What support do health centers give to CHW to implement *Posyandu* during pandemic?
4. What are the challenges and barriers to support CHW to implement *Posyandu* during pandemic?
5. What are the challenges, barriers, and facilitators to support CHW to implement *Posyandu* during pandemic?

### Questions for **Posyandu/village** level interview:

1. How has the pandemic impacted *Posyandu* frequency?
2. How have the pandemic impacted the community participation in *Posyandu* activities (ie. attending *Posyandu*)?
3. What have you done to keep providing health services to pregnant women and children during the pandemic?
4. What support have you received from health centers or other sources to implement *Posyandu* during pandemic? What other support do you need?
5. What are the challenges and barriers in implementing *Posyandu* during pandemic?
6. What are the facilitators in implementing *Posyandu* during pandemic?