

## The Impact of COVID-19 Pandemic on Antenatal Visits and Routine Examinations in Paleteang District of Pinrang Regency, Indonesia

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### Abstract

Maternal and child health care has been a big challenge in Indonesia. Moreover, the COVID-19 pandemic has caused considerable restrictions to maternal and newborn healthcare services. Consequently, community health services faced changes in policies such as limiting antenatal care visits, which resulted in irregular health examination for pregnant women. Therefore, this study aims to examine the frequency of the village midwives' house visits during the COVID-19 pandemic and the appropriate routine examination of pregnant women. This is an observational study conducted from March to late October 2020. Data were collected in Pinrang sub-district of South Sulawesi using cluster random sampling targeted at pregnant women in six villages. The Chi square test was used to identify possible association between both variables. Out of the 63 pregnant women who participated in this study, more than 54% reported to have been visited and received medical examinations. The results shows that there is a significant relationship between

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the number of visits and appropriate examination with  $p$  value 0.04 and potential risk OR 4.860 (95% CI: 0.956 to 24.703). The village midwives' visitation frequency was quite high during the COVID-19 but a potential risk was recorded for pregnant women who had incomplete routine examination. Therefore, there is need for collaborative effort between the local government and related sectors to improve maternal home health care services.

**Keywords:** *midwives, pregnancy, coronavirus*

## 1. Introduction

Antenatal care is a regular visit by pregnant women for checkups at a health facility to improve maternal and newborn health status. In addition, healthcare services are provided to pregnant women on a regular basis using predetermined schedule aimed at early detection of abnormalities and risks that arise during pregnancy. Hence, these abnormalities and risks are resolved quickly and precisely.

The Antenatal Care model by the World Health Organization (WHO) 2016, recommends a minimum of eight ANC contacts, with the first contact scheduled for the first trimester (up to 12 weeks of gestation), two in the second trimester (at 20 and 26 weeks gestation), and five in the third trimester (at 30, 34, 36, 38 and 40 weeks of pregnancy) (Lattof et al., 2019).

In Indonesia, healthcare services for pregnant women are expected to meet the minimum frequency in each trimester, such as, at least once in the first trimester (0-12 weeks of gestation), once in the second trimester (12-24 weeks of gestational), and twice in the third trimester (24 weeks of gestation) (Primadi et al, 2019). This model focused on the quality of services received by expectant mothers compared to the quantity (Konlan et al., 2020). Meanwhile, standard time for services were recommended to ensure protection for pregnant women and fetuses in form of early detection of risk factors and prevention, as well as early treatment of pregnancy complications. Therefore, there is need to ensure antenatal care from the gestational period to parturition.

Furthermore, to implement health services for pregnant mothers, an assessment is needed on the K1 and K4 coverage, whereby K1 is the number of pregnant women receiving antenatal health services for the first time compared to the number of pregnant women in a targeted work area in one year, whereas, K4 coverage consist of pregnant women who have received antenatal health services at least four times based on the predetermined schedule for each trimester, compared to the number of pregnant women in a targeted work area in one year.

To date, maternal and child health care is still a big challenge in Indonesia. Therefore, the provision of services during the pandemic needs attention to avoid increase in maternal morbidity and mortality as well as to anticipate unhealthy conditions. In addition, the health condition for pregnant women needs to be ideal, however, this is another fundamental challenge.

To anticipate pandemic condition, Indonesia Ministry of Health launched practical guidelines for maternal and newborn health care particularly for routine services in health facilities. Meanwhile, several obstacles in the form of lockdowns, curfews, and the risk of infection, prohibited women

from accessing health facilities during the pandemic (Kimani et al., 2020). Routine health visits are needed for prenatal care, however, this potentially put individuals at greater risk of interaction with sick patients (Rasmussen & Jamieson, 2020).

Pregnant women who live far from health facilities, particularly in rural area, experience difficulties in accessing good healthcare, partly due to the poor access to the internet. Previous study showed that about 20% of pregnant women were afraid of medical appointments, while more than half were reluctant in reporting for antenatal at health facilities. In addition, over half considered or agreed to cancel scheduled antenatal appointments (Wu et al., 2020). Low numbers were reported for midwives attending maternal and women's health clinics due to the fear of the coronavirus spread (Pallangyo et al., 2020). Therefore, poor maternal and neonatal outcomes reportedly contributed to the lack of prenatal care resulting to ruptured uterus or stillbirth (Pallangyo et al., 2020).

The COVID-19 pandemic reportedly reduced maternal health services particularly in the form of antenatal care visits and routine observations and this resulted in changes of service policies. Therefore, we aim to investigate the appropriateness of maternity services via midwifery approach in Paleteang District of Pinrang Regency, Indonesia during the COVID-19 pandemic.

## **2. Materials and methods**

### ***Study Design***

This is a cross-sectional and observational study conducted on pregnant women during the COVID-19 pandemic who gave birth in late October 2020. Ethical approval letter was secured from Institutional Review Board of Muhammadiyah Makassar University (Reference No: 040/05/A.6-II/I/41/2020). Additional support letter was obtained from Local Ministry of Health as required from Community Health Center office. Oral informed consents were obtained from all participants. Furthermore, related data on antenatal component were collected in the Paleteang District of Pinrang Regency using cluster-random sampling. Pinrang regency constituted one of the districts in South Sulawesi province, Indonesia. It is located, 185 km from Makassar, capital city of South Sulawesi Province.

### ***Population and Sampling***

A total of sixty-three pregnant women participated in this study.

### ***Inclusion criteria***

The pregnant women were asked to provide antenatal services experiences between the first and third trimester during the COVID-19 pandemic. Data were collected from respondents, who completed the questionnaire and have no disease history during pregnancy.

### ***Exclusion criteria***

We excluded all pregnant women who had no record (book cohort) or with incomplete data from first and third trimester during pregnancy.

### ***Measurement of exposure, outcomes, and covariates***

The questionnaire was developed based on the record book for antenatal care (book cohort). Specific exposures were recorded based on routine examinations which were commonly given during the antenatal visits. Exposure was categorised as complete and incomplete. A minimum number of four visits with routine examinations such as gestational age, haemoglobin, blood pressure and upper arm circumference measurement is defined as complete exposure. Whereas exposure is incomplete when pregnant women were visited less than four times during pregnancy. The primary outcome was defined as appropriate when the measurements and examinations required for that gestational age were carried out during the visits. On the contrary, inappropriate examinations and measurements were declared if the examinations and measurements did not belong to the mother's gestational age.

### ***Data Analysis***

Given that the data were categorical with both independent and dependent variables, the chi square test was deemed appropriate for data analysis. To prove the hypothesis, a descriptive analysis was conducted and then cross tabulated to analyse the association between the number of home visits by the village midwives and routine examinations. The odds ratios (ORs) were also estimated as well as the 95% confidence intervals (95% CI). Statistical analysis was performed using SPSS software (v.21; IBM SPSS, Armonk, NY, USA).

## **3. Results**

In this study, pregnant women with single birth were selected, observed, and assessed. Meanwhile, a total of 63 women participated and those who failed to complete the book cohort were excluded. In general, 92.1% of the participants were  $\leq 20 - 30$  years, while 7.9% were  $>30$ . As for the percentage of parity 89% had  $\leq 3$  children while 8.1% had  $\geq 3$  children. Furthermore, 28.6% participated in blood pressure measurement during the first visit while 71.4% refused. Regarding upper arm circumference, 19.0% underwent and completed this measurement while 81.0% declined (Table 1).

There was a significant relationship ( $p= 0.041$ ) and ORs 4.860 (95% CI: 0.956 to 24.703) between the number of home visit by village midwives and appropriate examination, (Table 2).

Table 1: Demographic and routine antenatal examinations

<b>Characteristics and Type of Examination</b>	<b>Total (n=63)</b>	<b>Percentage (%)</b>
<b>Age Group</b>		
$\leq 20 - 30$ years old	58	92.1
$> 30$ years old	5	7.9
<b>Parity</b>		
$\leq 3$	56	89

≥3	7	8.1
Hemoglobin measurement		
Routine	31	49.2
Not Routine	32	50.8
Blood pressure measurement		
Yes	18	28.6
No	45	71.4
Upper arm circumference		
Yes	12	19
No	51	81
Number of visits		
Completed	34	54
Not completed	29	46
Appropriate measurement		
Yes	11	17.5
No	52	82.5

Table 2: The association between the number of village midwives’ visits and appropriate examination

Number of visits	Accurate Action		Odds Ratio (ORs)	p-value
	Not Accurate n=(%)	Accurate n=(%)		
≤ 4	25 (73.5)	9 (26.5)	4.860 (0.956-24.703)	0.041
≥ 4	27 (93.1)	3 (6.9)		
Total	52 (81.2)	12 (18.8)		

#### 4. Discussion

This study showed that antenatal care and general health check-up for pregnant women in the research area was appropriately conducted during the COVID-19 pandemic. However, the performance of village midwives in the form of home visits was low. Routine measurements such as haemoglobin measurement, upper arm circumference and blood pressure measurement were not entirely covered in the first visit. Meanwhile, these components potentially affect the association between variables.

According to the practical guidelines for maternal health services and low birth weight during COVID -19, pregnant women are mandatorily expected to visit twice during gestation, particularly

during the first and third trimester (Kementerian Kesehatan RI, 2020). However, given the pandemic situation, village midwives are to carry out visitation, intensive education, as well as consultation to monitor pregnant women using mobile phone groups.

This study demonstrated that the COVID-19 pandemic present challenges for pregnant women and health providers particularly village midwives. These individuals were unable to carry out home visits due to the lack of time in the routine activities. The involvement of cadres in antenatal care services is needed as these personnel are more closer to the community and bridge the gap between health workers as well as maternal and child health management (Martha et al., 2020).

This study found that home visit for antenatal care, indirectly affects routine measurement of pregnant women. Some of the components tend to be deficient when care is not provided for pregnant women during the gestational period, especially on physical and emotional health status of the mother and child, considering the current COVID-19 crisis (Kimani et al., 2020). Such attempts are important to midwives for safe childbirth and quality midwifery service.

Therefore, exclusion from prenatal follow-up potentially leads to condition that negatively affect pregnancy outcome, such as ectopic pregnancy, late detection of congenital anomalies, uncontrolled hypertension and pre-eclampsia, post-term birth, and dystocia (Kahyaoglu & Kucukkaya, 2020). Meanwhile, the fear of COVID-19 infection clearly affected these efforts (Pallangyo et al., 2020).

To anticipate these conditions particularly in rural areas where there is limited access to community health centres, modified services are to be provided by the local government in line with economic condition of the community and case level. The fear of infection is resolved by giving health workers sufficient protection. In addition, pregnant women are to be provided with alternatives to overcome the transport challenges, and enable to access referral-level treatment (Karkee & Morgan, 2020).

Although this study was carried out in line with scientific procedures, there were some limitations, whereby only 63 pregnant women in the first to third trimester were included in the study. In addition, misclassification of data on the types of measurement tend to also influence the accuracy of examination. Despite these limitations, this study highlights the need for effective interventions for maternal health services during a pandemic.

Efforts are highly required to overcome several maternal health problems in primary district service centers. This includes establishing and implementing health policies adapted to specific local context. Therefore, further analysis and policy research are needed in relation to specific health issues.

## **5. Conclusion**

The frequency of village midwives' house visits was high during the COVID-19 pandemic, however, the adequacy of the examinations was lacking. Pregnant women who received less than 4 antenatal visits could have risks for inappropriate examinations. This result may be valuable for health workers and local government to anticipate health services in COVID-19 pandemic.

Therefore, there is a need for high efforts and good collaboration between the local government and related sector to improve home visit services. It is essential to ensure that all pregnant women in the community are given convenient access to health facilities and services in line with the standard operating procedures that must be implemented in this COVID-19 pandemic.

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## References

- Karkee, R. and Morgan, A. (2020). Providing Maternal Health Services during the COVID-19 pandemic in Nepal, *Lancet Global Health*, 8(10), 1243-1244. [https://doi.org/10.1016/S2214-109X\(20\)30350-8](https://doi.org/10.1016/S2214-109X(20)30350-8)
- Kahyaoglu Sut, H. and Kucukkaya, B. (2020). Anxiety, depression, and related factors in pregnant women during the COVID-19 pandemic in Turkey: A web-based cross-sectional study', *Perspectives in Psychiatric Care*, 1-9. <https://doi.org/10.1111/ppc.12627>
- Kementerian Kesehatan Republik Indonesia (2020). Pedoman Pelayanan Bagi Ibu Hamil, Bersalin, Nifas, Dan Bayi Baru Selama Social Distancing. *Sub Direktorat Kesehatan Maternal dan Neonatal, Direktorat Kesehatan Keluarga, Direktorat Jenderal Kesehatan Keluarga*. <https://infeksiemerging.kemkes.go.id>
- Kimani, R.W., Maina, S., Shumba,C., Shaibu, S., (2020). Maternal and newborn care during the COVID-19 pandemic in Kenya: Re-contextualising the community midwifery model, *Human Resources for Health*, 18(1). <https://doi:10.1186/s12960-020-00518-3>.
- Konlan. K.D., Saah, J.A., Amoah, R.M., Doat, A.R., Mohammed, I., Abdulai, J.A., Konlan, K.D., (2020). Factors influencing the utilization of Focused antenatal care services during pregnancy, a study among postnatal women in a tertiary healthcare facility, Ghana, *Nursing Open*, 7(6). <https://doi:10.1002/nop2.569>
- Lattof, S. R., Tuncalp, O., Moran, AC., Bucagu, M., Chou, D., Diaz, T., Gulmezoglu, A.M., (2019). Developing measures for WHO recommendations on antenatal care for a positive pregnancy experience: A conceptual framework and scoping review, *BMJ Open*, 9(4), <https://doi:10.1136/bmjopen-2018-024130>
- Martha, E.,Nadira, N, A., Sudiarti, T., Mayangsari, A, P., Enjaini, E,F., RYanthi, T, P., Bangun, D, E., (2020). The Empowerment of Cadres and Medicasters in the Early Detection and Prevention of Stunting. *The Indonesian Journal of Public Health*, 15(2), 156-161. <https://doi:10.20473/ijph.v15i1.2020.153-161>
- Pallangyo, E., Nakate, M.G., Maina, R., Fleming, V., (2020). The Impact of Covid-19 on Midwives' practice in Kenya, Uganda and Tanzania: A reflective account. *Midwifery*, 89(10). <https://doi.org/10.1016/j.midw.2020.102775>

Primadi. O., Budijanto.D., Kurniawan.R., Yudianto., Hardana.B., Siswanti. T., (2019). Profil Kesehatan Republik Indonesia Tahun 2018. *Kementerian Kesehatan Republik Indonesia. Pusat Data dan Informasi Kementerian Kesehatan. [www.kemendes.go.id](http://www.kemendes.go.id)*

Rasmussen, S. A. & Jamieson, D. J. (2020) 'Coronavirus disease 2019 (COVID-19) and pregnancy: Responding to a rapidly evolving situation, *Obstetrics and Gynecology*, 135(5). [https://doi: 10.1097/AOG.0000000000003873](https://doi.org/10.1097/AOG.0000000000003873)

Wu, H., Sun, W., Huang, X., Yu, S., Wang, H., Bi, X., Sheng, J., Chen, S., Akinwunmi, B., Zhang, C., J.,P., Ming, W., (2020). 'Online antenatal care during the COVID-19 pandemic: Opportunities and challenges, *Journal of Medical Internet Research*, 22(7). [https://doi: 10.2196/19916](https://doi.org/10.2196/19916)