

How Much Time Do Midwives Spend on Antenatal Care? Assessment of Antenatal Care (ANC) in Six Districts/cities of West Java-indonesia

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Abstract

Background: The government makes various policies to improve the health of pregnant women, which in turn has an impact on reducing maternal mortality and infant mortality. Antenatal care (ANC) is the most important strategy to improve the health of pregnant women. District/city governments must ensure the availability of antenatal services for their communities in primary health facilities (PHF). Midwives are the primary provider of antenatal care at PHF. This study describes the time required for midwives to provide standardized antenatal care.

Methods: This study was a time study method, which analyzes the average time of ANC Services by midwives in PHF. The study observed fifty-eight midwives who gave ANC services to five hundred fifty-two pregnant women in six districts in West Java. The data collection was carried out in January-February 2019.

Results: In this study, it was found that the time to ANC varied widely; for ANC-I, the average is 30.34 minutes (Min 25 minutes- Max 50 minutes; lower mean 56,7%), ANC-II 23.12 minutes (Min 17 minutes - Max 36 minutes; Lower mean 63,5%), and ANC-T 26.9 minutes (Min 23 minutes - Max 35 minutes; lower mean 53,2%). The order of service time is as follows: ANC-I, ANC-T and ANC-II.

Conclusions: The time used for ANC is still significantly less than that recommended by the WHO for pregnant women's visits (40 minutes per visit). The reason will undoubtedly affect the quality of ANC services. It is hoped that District/City Administrative and Health Authorities will pay more attention to the duration time of ANC visits by developing a standard time of visit per patient or increasing the number of midwives in carrying out ANC services at that location.

Background

In 2017, nearly 810 women died every day from preventable conditions related to pregnancy and childbirth. Nevertheless, there has been a successful reduction in maternal mortality between 2000–2017 in the world by 30%. The world must note that almost 94% of maternal deaths occur in lower-middle-income countries, such as Indonesia. The governments of these countries should also perceive those deaths from complications as very common in young adolescents (ages 10–14); Therefore, the program to improve the quality and quantity of midwives must be a priority because the mothers' life is very dependent on them. (WHO, 2019)

The Maternal Mortality Rate (MMR) in Indonesia in the 2011–2014 period reached 305 maternal deaths caused by pregnancy, childbirth, and up to 42 days after delivery, dominated by bleeding causes, hypertension in pregnancy (HDK), and infection (Minister of Health Republic of Indonesia, 2017). Meanwhile, Indonesia is in the third position of the highest MMR in 2017, with 177 maternal deaths per 100 thousand births (WHO, UNICEF, UNFPA, World Bank Group, and the United Nations Population Division, 2021). This data shows that reducing maternal mortality has not successfully achieved the

standard at least below ASEAN countries. With this situation, the government must evaluate the program's quality being implemented to accelerate maternal mortality resolution.

One of the efforts made by the Ministry of Health in handling emergency obstetric and neonatal complications at the Puskesmas level is through the Basic Emergency Neonatal Obstetric Service (PONED) with a referral system to hospitals that have Comprehensive Emergency Neonatal Obstetric Services (PONEK) with the Cooperation program. Increased PONED-PONEK. In remote areas, there are also many Villages Health Posts (Poskesdes) and Maternity Villages (Polindes). Village health posts (Poskesdes) and Village Maternity posts (Polindes) are still minimal in some areas in Indonesia. Poskesdes and Polindes function as service centers for villagers far from the Puskesmas (Minister of Health Republic of Indonesia, 2013). However, in Papua, 98 percent of villages do not have Poskesdes. Seventy-two percent of them still find it difficult to access the Puskesmas. (Andini, 2020)

However, the low quality of ANC services in Indonesia is revealed from several research results in the following Public Health Centers (Puskesmas) and Hospitals; (a) the implementation of counseling and education is only carried out by 45% of Puskesmas and 24.2% of Hospitals, (b) Routine follow-up examinations are only carried out 39.4% in hospitals and only 19.7% in Puskesmas, (c) Documentation the results of the examination were only carried out 42.5% at the Puskesmas and only 20% at the hospital, (d) Midwives who performed ANC correctly and well for the 9T, 7T, and 5T components were 18.8%, 23.2%, and 31, 7%. (e) Only 20.4% of Puskesmas have all equipment, medicines, and supporting media for 9T ANC services, (f) Only one-fifth of midwives who perform ANC services entirely and correctly for 9T service components, (g) Midwife's experience in doing ANC 9T is better for those who have less than 20 years of profession and have at least a midwifery diploma level. (Hendarwan, 2018; Kemenkes, USAID, Unicef, 2012)

There is still a shortage of village midwife resources compared to the number of villages in Indonesia, currently reaching 83,000 villages. Meanwhile, there are only about 30,000–45,000 midwives in the village, meaning that there are vacancies in many villages for various reasons. In addition, midwives are expected to have a professional certificate and improve their skills. (Seno P Santo, 2020) Another issue is that of the 357,000 midwives currently registered, 60 percent are in Java. (Mujahidin, 2019)

During counselling and antenatal care examination, the length of time is the key to increasing maternal health behavior in recognizing danger signs in pregnancy and raising awareness for families in maintaining maternal health during pregnancy. (Lindmark et al., 1998; Nikiéma et al., 2009) The information provided by the midwife will significantly affect the behavior of the mother during pregnancy and the period of child-rearing up to Five years. However, ANC counselling, in addition to the short duration of time and not accompanied by filling out health records during pregnancy in the MCH Handbook filling out the information in this book accompanied by education for pregnant women will significantly affect the mother's knowledge about pregnancy, childbirth, and child care, especially during the immunization period. (Baequni et al., 2016; Yanagisawa et al., 2015)

This paper describes the current performance of the length of time and components of antenatal care by midwives at PHF. The implementation of antenatal care carried out is then compared with the applicable standards.

Methods

The study was conducted in six districts/cities in West Java Province, namely Bogor District, Cianjur District, Cirebon District and Sumedang District, Depok City and Tasikmalaya City. The locations of these districts/cities are spread over the area of West Java Province. In each district/city, two sub-districts were taken, with the criteria for the number of inhabitants and the distance of the location of the sub-district from the capital of the district/city.

This study was a time study method, which was carried out by observing the work of midwives when providing antenatal care, by recording the length of time for each component of antenatal care, namely recording data on pregnant women, examinations and consultations. The number of research subjects was fifty-eight midwives who gave ANC services to five hundred fifty-two pregnant women. The data collection was carried out in January-February 2019. In determining the midwives as the sample, the researcher discussed with the Coordinator Midwife. The inclusion criteria for research subjects were (a) Midwives who provided antenatal care, (b) Midwives who placed in public health centers (PHC) or village health centers (village midwives) and Independent Practice Midwives, (c) Midwives who had a minimum of five years work experience, (d) Willingness to be research subjects, while the exclusion criteria are: (a) Coordinator Midwives or midwives who do not practice providing antenatal services, see table 1 about the characteristics of respondents. This observation was conducted in rural and urban areas in six districts in West Java.

Table 1, Characteristics of respondents

No	Respondent Characteristics	N	Proporsi
1	Age		
	26-30 Year	6	10.3
	31-40 Year	13	22.4
	41-50 Year	32	55.2
	51-58 Year	7	12.1
		58	100.0
2	Level of Education		
	3-Year Diploma	35	60.3
	4-Year Diploma/Strata-1	22	37.9
	Other Health Strata-1	1	1.7
		58	100.0
3	Employment status		
	Civil Servant	40	69.0
	Civil Servant Candidate	2	3.4
	Assignment from the government (PTT)	4	6.9
	Local Government Contract	4	6.9
	Private	8	13.8
		58	100.0
4	Length of work		
	5-10 Year	12	20.7
	11-20 Year	16	27.6
	21-30 Year	24	44.8
	31-40 Year	4	6.9
		58	100.0

The triangulation of sources was carried out by grouping the PHC Midwives, Village Midwives, and Independent Practice Midwives. Time triangulation has been done by collecting data on different working days, starting from Monday to Saturday.

Data on the interval time for antenatal care were processed by: (a) the time of each service were broken down into service stages, starting from the time of recording patient data, examination, and consultation, (b) the time for each stage of service calculated the mean, lowest and highest values, (c) the time of each service stage is totaled, then the mean value time is calculated.

Enumerators are Diploma 3 midwifery graduates. They have participated in research conducted by the Ministry of Health. Before doing this research, an expert trained them for one day, and each district has four enumerators.

Results

At the time of data collection, Antenatal care or ANC were grouped into three visits, namely the first visit (ANC-I), the second visit (ANC-II) and the last visit (ANC-T). ANC-I was the first visit. ANC-II is a repeat visit for pregnant women, which consists of a second, third, and so on. ANC-T is the last visit before delivery.

In this study, it was found that the time to ANC varied widely; for ANC-I, the average is 30.34 minutes (Min 25 minutes- Max 50 minutes; lower mean 56,7%), ANC-II 23.12 minutes (Min 17 minutes - Max 36

minutes; Lower mean 63,5%), and ANC-T 26.9 minutes (Min 23 minutes - Max 35 minutes; lower mean 53,2%). The order of service time is as follows: ANC-I, ANC-T and ANC-II (see Table 2).

Table 2, Duration for antenatal care in six districts West Java

ANC components	ANC-I Duration (N=90)					ANC-II Duration (N=370)					ANC-III Duration (N=62)				
	(minutes)			Percents Observation		(minutes)			Percents Observation		(minutes)			Percents Observation	
	Mean	Min.	Max.	Lower Mean	Value and Higher	Mean	Min.	Max.	Lower Mean	Value and Higher	Mean	Min.	Max.	Lower Mean	Value and Higher
Maternal Data Recording	9,68	6	18	66,0	34,0	4,09	2	9	67,3	32,7	3	2	9	80,60	19,40
Physical Examination	2,82	2	6	45,6	54,4	1,98	1	5	27,8	72,2	2,7	2	5	45,20	54,80
Obstetric Examination	6,04	3	6	64,4	35,6	7,13	4	12	68,9	31,1	7,9	6	12	45,20	54,80
Provision of Supplements & drugs	1,57	1	4	54,4	45,6	1,54	1	8	55,9	44,1	1,5	1	2	50,00	50,00
Consultation	9,26	5	24	51,0	49,0	7,29	3	15	56,5	43,5	12	8	19	53,20	46,80
Administration for Referral						9,6	5	15	60,0	40,0	12,5	10	15	50,00	50,00
ANC Total Time	30,34	25	50	56,7	43,3	23,12	17	36	63,5	36,5	26,9	23	35	53,20	46,80

Explanation: Number of referral in ANC-II= 10 cases; ANC-T = 4 cases

During ANC-I or the first visit of a pregnant woman, midwives have to collect quite a lot of information from pregnant women. The activities carried out are in the form of recording information: (a) characteristics of pregnant women, (b) history of current pregnancy, (c) history of contraceptive use, (d) past obstetric history, (e) medical history and (f) socio-economic history. The average time to record data for pregnant women is 9.39 minutes. The difference between the maximum (longest) time and the minimum (shortest) time is 14 minutes. The longest time is 18 minutes, because pregnant women must recall the conditions before their current pregnancy. The minimum time (= shortest) is 4 minutes. This happens if the pregnant woman has visited before, for example as a Family Planning (KB) patient, then information about the characteristics, history of medical and contraceptive use already exists. For ANC 2 and ANC-T, the average time required for data recording is shorter, namely 4.10 minutes and 3.00 minutes, and the difference between the longest and shortest time is shorter, which is 7 minutes. The data recorded is usually the result of the examination or the condition of the last pregnant woman.

The physical examination at the first visit that was examined was height, upper arm circumference (LILA), blood pressure, and weight, as well as general physical conditions, such as whether the face of the pregnant woman looks pale or not. At the next visit, only blood pressure and weight were measured, plus other examinations related to problems that had been identified at the previous visit, such as whether or not there was swelling in the pregnant woman's legs. The variation in the average time of physical examination between ANC1, ANC2, and ANC-T was not too large, namely 0.84 minutes (1.98 – 2.82 minutes).

Table 3, Result of observation service components in each level of Antenatal Care (ANC) Services

Service	ANC-I	ANC-II	ANC-T
Maternal data recording	Characteristics of pregnant women, history of current pregnancy, history of contraceptive use, past obstetric history, other medical history and socio-economic history	Development of the condition of pregnant women and fetus	Development of the condition of pregnant women and fetus
Physical examination	height	blood pressure	blood pressure
	Upper Arm Circumference/LILA	weight	weight
	blood pressure	common physical conditions, such as swollen feet	common physical conditions, such as swollen feet
	weight		
	general physical conditions, such as whether the face of a pregnant woman looks pale or not		
Obstetric Examination	Uterine examination	Examination of the top of the uterus (height of the uterine fundus)	Examination of the top of the uterus (height of the uterine fundus)
		Determine fetal presentation fetal heart rate	Determine fetal presentation fetal heart rate
Provision of Supplements and drugs	blood boost tablets	blood boost tablets	Giving blood booster tablets and needed drugs
	Supplementary Feeding	Supplementary Feeding	
	provision of needed drugs	provision of needed drugs	
Consultation	Pregnancy and its complications, Diet and nutrition, Rest and exercise during pregnancy, Personal hygiene, Danger signs in pregnancy, Use of drugs in pregnancy, Impact of STI/HIV/AIDS, Voluntary counseling and HIV testing, Breast care and breastfeeding, Symptoms/signs of labor, Birth plans (emergency preparedness, place of delivery, transportation, financial arrangements), Postpartum care plan, Family planning, Dangerous habits (e.g. smoking, drug abuse, alcoholism)		
Referral to Hospital			

Obstetric examination consists of measuring the height of the top of the uterus (fundus uteri), determining the presentation of the fetus and calculating the Fetal Heart Rate (FHR). The average time of this examination tends to increase with increasing gestational age, namely ANC1 for 6.04 minutes, ANC2 for 7.13 minutes, and ANC-T for 7.9 minutes. At the last ANC (ANC-T), midwives must be more careful in examining the womb of pregnant women because of the preparation for delivery. Midwives must be able to detect if there are abnormalities or if pregnant women need a referral for delivery.

Provision of supplements to pregnant women in the form of blood-added tablets and PMT (Supplementary Feeding) for pregnant women. Drugs are given to pregnant women according to complaints. When giving supplements or medicines, the midwife also explains how to take them and the side effects. In ANC-I and ANC-II, all pregnant women (100%) received supplements or medicines, but in ANC-T only 2 (two) pregnant women (1.2%). The average service time ranges from 1.54-1.57 minutes in ANC-I, ANC-II and ANC-T.

The mean consultation time for ANC1, ANC2, and ANC-T were 9.26 minutes, 7.29 minutes, and 12.00 minutes, respectively. During the consultation, the midwife explains to pregnant women about (a) pregnancy and its complications, (b) diet and nutrition, (c) rest and exercise during pregnancy, (d) personal hygiene, (e) danger signs in pregnancy, (f) use of drugs in pregnancy, (g) impact of STI/HIV/AIDS, (h) voluntary counselling and HIV testing, (i) breastfeeding, (j) symptoms/signs of labour, (k) birth plans (emergency preparedness, transportation, place of delivery, (l) financial arrangements, (m) postpartum care plan, (n) family planning, (p) dangerous habits (e.g. smoking, drug abuse, alcoholism). Especially for ANC-T, the midwife must explain the preparation for delivery to pregnant women, so that the average consultation time is the longest.

The large range between the longest and the shortest consultation times is due to the interaction between the midwife and pregnant women. The ability of the midwife to explain affects whether or not pregnant

women easily understand the midwife's explanation. On the other hand, the ability of pregnant women to understand the explanations of the midwives varies greatly, some quickly understand, but some take a long time or find it difficult to understand the midwife's explanation.

Referral cases were found in ANC2 and ANC-T. In ANC2, there were 10 pregnant women who needed referral services or 2.4% of the total observations. This pregnant woman was referred to a secondary health facility for further examination from an obstetrician. Meanwhile, in the last ANC (ANC-T), pregnant women who received referrals meant that pregnant women needed delivery services at secondary health facilities.

Our observations indicate that midwives have implemented the ANC standard as stipulated in the Regulation of the Minister of Health of the Republic of Indonesia No. 4 of 2019 concerning Technical Standards for Fulfilling Basic Service Quality on Minimum Service Standards in the Health Sector (Ministry of Health, 2019). The implementation of ANC standard including 10 T, (a) measurement of height, weight, blood pressure, Upper Arm Circumference (LiLA), and Uterine Fundal Height (UFH), (b) determination of fetal presentation and Fetal Heart Rate (FHR), (c) immunization according to immunization status, (d) provision of at least 90 oral iron supplements, (e) laboratory test, (f) counseling, and (g) case management. However, in the current ANC standard, the ANC time standard that is the standard length of time for health workers to provide ANC in each visit to pregnant women has not been set.

Discussions

The findings of the study are: (1) The average time a midwife currently spends on an ANC first visit (ANC-I) client is about 30.34 minutes, and ANC-II is about 23.12 minutes, and the last ANC (ANC-T) is about 26.9 minutes, (2) The difference of service time in each ANC visit (where ANC-I visit is 2–3.5 longer than ANC-II and ANC-T) is caused by the time standard of ANC visit that has not been set by Indonesia Ministry of Health.

WHO has set the standard service time for each ANC service, namely 40 minutes for ANC First Visit and 20 minutes for ANC Revisit. By comparing the result of the study with the WHO standard, it can be concluded that the ANC First Visit service time is only 0.75 of the WHO standard time where the ANC Revisit service time has already higher than the WHO standard.

In a study, von Both, C., Fleßa, S., Makuwani, A., Mpembeni, R., & Jahn, A. (2006) examined the length of time antenatal care provided by health workers in Tanzania. The results of the study obtained: (1) Time requirements per ANC for 'the new model ANC or the focused ANC' are 46 minutes for an ANC first visit and 36 minutes for an ANC Revisit, (2) Time requirements per ANC for 'the current model ANC' are 15 minutes for an ANC first visit and 9 minutes for an ANC Revisit. The difference in service time between the two ANC models is the time for consulting services (Health education and counseling). The consultation service time for an ANC first visit is 15 minutes on 'the new model ANC' and 1.5 minutes on

'the current model ANC'. Meanwhile, the consultation service time for an ANC Revisit is 15 minutes on 'the new model ANC' and 0 minutes (= not done) on 'the current model ANC'.

The results of the study by Magoma, Moke, et al (2011) regarding the timing of ANC services in Tanzania gave different results in the control group and the intervention group. Time requirements per ANC in the intervention group are 40.1 minutes for an ANC first visit and 23.3 minutes for an ANC Revisit. In the control group, Time requirements per ANC are 19.9 minutes for an ANC first visit and 10.3 minutes for an ANC Revisit. The factor that causes the difference in service time between the two groups is the time for consulting services (health education and counseling). Consultation service time at an ANC first visit was 24.5 minutes in the intervention group and 10.5 minutes in the control group. Meanwhile, the consultation service time for ANC Revisit was 13.8 minutes in the intervention group and 4.5 minutes in the control group. The results of this study obtained the following consultation service times: ANC-I (an ANC first visit) for 9.26 minutes, ANC-II (an ANC Revisit) for 7.29 minutes, and ANC-T (an ANC Revisit) for 12 minute

Antenatal care is an important service to monitor the physical development of the mother and fetus. Consultation conducted during ANC is the midwife's way of providing education for pregnant women, especially in reducing pregnancy problems and ensuring accuracy in screening pregnant women (Al-Ateeq & Al-Rusaies, 2015). Pregnant women perceive midwives as a source of verbal information about pregnancy and childbirth (Baron et al., 2017); Therefore, the role of midwives in pregnant women is very important. (Arrish et al., 2014; Heslehurst et al., 2013).

This lack of time also impacts recording maternal records in the MCH Handbook, which is a standard book for education for pregnant women in Indonesia. Education by using MCH Handbooks will increase the mother's knowledge of knowledge and better practices during pregnancy, delivery, and child health care. (Baequni et al., 2016; Baequni & Nakamura, 2012)

Technically, the length of time ANC will affect the quality of the ANC given to pregnant women. However, it would be better if the District/City Administrative and Health Authorities conducted a thorough evaluation of the implementation of ANC at PHF, namely evaluating the availability of tools, medical and non-medical materials, and health personnel (midwives). The evaluation also needs to include the quality of the ANC provided by the midwife, such as the ability of midwives to measure blood pressure accurately, detecting pre-eclampsia in pregnant women, and conducting empathetic communication.

Conclusions

The time used for ANC is still significantly less than that recommended by the WHO for pregnant women's visits (40 minutes per visit). The reason will undoubtedly affect the quality of ANC services. It is hoped that the District/City Administrative and Health Authorities will pay more attention to the duration time of ANC visits by developing a standard time of visit per patient, evaluate the implementation of ANC, or if needed add a midwife in carrying out ANC services at that location.

Abbreviations

ANC: Antenatal care.

ANC-I = the first visit,

ANC-II = the second visit

ANC-T= the last visit

PHF: Primary Health Facilities

PHC: Public Health Center

Declarations

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Authors' Contribution

EPD designed the study, developing the data collection tools, collected and analyzed the data, drafted the initial manuscript and reviewed subsequent drafts. ACS participated designing the study, reviewing the final manuscripts. BB contributed to analysed of the data, and helped in writing the paper. All authors approved the final version of the manuscript.

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Availability of Data and Materials

All raw data and data that have been processed are owned by the author

Ethics Approval and Consent to Participate

All methods were carried out in accordance with relevant guidelines and regulations. Ethical approval was obtained from The Research and Community Engagement Ethical Committee Faculty of Public Health

University of Indonesia (Ref: 648/UN2.F10/ PPM.00.02/2018). Permission was also granted from The National and Politics Unity of West Java Province, District/City Administrative and Health Authorities and Head Of Public Health Center. Informed verbal consent was obtained from all midwives who participated in study.

Consent for Publication

Not Applicable.

Competing Interest

The author(s) declare that they have no competing interests.

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