



Determinant Factors of Visiting Antenatal Care among Pregnant Mothers In Dintor Public Health Center, Manggarai Regency

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Abstract

Health care services to pregnant mothers are conducted by health professionals, mainly midwives in health care facilities. The study aimed to analyze determinant factors of antenatal care (ANC) visits of pregnant mothers in Dintor Public Health Center, Manggarai Regency. This study used an analytic study design with the cross-sectional approach. This study's respondents are 56 postpartum mothers, recruited with a nonprobability sampling technique, and total sampling was conducted. Data were collected through a questionnaire, analyzed using a logistic regression test with a significant less than 0.05. The study result showed the existence of influence of mother's age ($p=0.029$), parity ($p=0.027$), education ($p=0.007$), working status ($p=0.000$), knowledge ($p=0.000$) and ANC quality of care ($p=0.012$) towards the pregnant mother's ANC visit. Based on the multivariate analysis result, the most significant variable influencing pregnant mothers' ANC visits to Dintor Public Health Center was the mother's education variable with an odds Ratio = 25.946. ANC quality of care with *odds Ratio* = 28.241, working status with *odds Ratio*=18.260, while the knowledge variable was insignificantly influencing the collective test with $p\text{-value} > 0.05$. It was concluded that all the variables tested in this study determining the pregnant mother's ANC visit to Dintor Public Health Center. Thus, health workers, particularly midwives expected to improve the promotive effort through health education on the importance of regular pregnancy examination to monitor mother and baby's health.

Keywords: Determinant factors, ANC



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INTRODUCTION

Antenatal care is defined as a health care service by a trained health professional for mothers on their pregnancy, conducted with standardized antenatal care conveyed on Midwifery Care Standard [1]. World Health Organization (WHO) stated that pregnancy examination must be operated under a fixed minimum standard which once on the first trimester on 0-12 weeks of pregnancy, once on the second trimester on 12-24 weeks of pregnancy, and twice on the third trimester on 24-40 weeks of pregnancy and before delivery[2]. This timely standard of care is recommended to guarantee the protection of pregnant mothers and their babies. It includes the early detection of risk factors, prevention, and early treatment of pregnancy complications [3].

Integrated antenatal care is comprehensive and high-quality antenatal care provided for every pregnant mother. The qualified antenatal care has to meet the government's standard, namely 10T (weighing and measuring height, measuring blood pressure, assess nutritional status (measuring upper arm circumference), measuring fundal height. In addition, determine the fetus's presence and fetal heart rate, the screening of tetanus immunization status and tetanus immunization injection if needed, providing iron tablets, simple laboratory examination (routine/specific), case management, counseling [4].

High-quality antenatal care is a vital factor in decreasing maternal and baby mortality rates. Through professional and qualified ANC, pregnant mothers receive education on maintaining health, preparing for healthy baby delivery, and increasing awareness and knowledge of pregnancy risks and complications. Therefore, optimum maternal health in preparing for delivery and the postpartum period is achieved[5].

K4 indicators are indicators used to assess the quality of maternal health care. This also stated on the Minister of Health Regulation Number 43 the Year 2016 on Minimum Health Care Standard. The performance achievement of Regional Authority on Regency/City in pregnancy health care is 100 percent. The low rate of Four Times Antenatal Care Visit (K4) shows the lack of opportunity to tracing and managing the high-risk obstetric. Less than 60% antenatal visit shows the insufficient antenatal care[3].

Basic Health Research (*Riset Kesehatan Dasar*) in 2018 shows that National K4 coverage is 74.1%, with the lowest range in Papua, as much as 43,8%. The highest prevalence at Yogyakarta was 90.2%, compared to the data from 2013 Basic Health Research, the national K4 coverage is 70%, with the lowest coverage in Maluku as much as 41.4%. The highest is Yogyakarta, with as much as 85.5%, meaning in 5 years, nationally, the K4 coverage is increasing as much as 4.1%[6].

The data from the 2017 Indonesian Health Profile stated that the national coverage of K4 is 87.3%. Ministry of Health Strategic Plan, the coverage planned is 76%, the 2017 coverage already achieve the strategic plan target. However, based on the data, five provinces have low ANC visiting with less than 60%, such as West Papua Province, East Nusa Tenggara, North Maluku, and Maluku. The obstacles to implementing pregnancy health care are not only on the accessibility issues but also the quality of care have to be improved, including the fulfillment of every component of pregnant mother health care to be provided on visit time[3].

Based on the East Nusa Tenggara Health Profile, in 3 years, the K4 coverage is increasing, which is 2015 the K4 coverage is 48.2%, in 2016 is 50.9%, and in 2017 is 56.6% [7]. The data obtained from Manggarai Regency Health Office the K4 coverage in 2018 is 51%, the lowest is in Dintor public health center as much as 39%. This showed that the K4 coverage in Manggarai Regency and Dintor Public Health Center does not attain the 95% strategic plan target of East Nusa Tenggara Provincial Health Office[8].

The researcher's initial study results in Dintor public health center through an interview with pregnant mothers showed that four of ten mothers are regularly doing antenatal care visits from

first to the third trimester. While the rest six mothers reported the irregular ANC visit with the reason such as busy and no complaints in pregnancy, they would do ANC visits if there are complaints and not busy working. Besides, mothers also do not acknowledge the importance of regular pregnancy examination by health professionals.

According to Indonesian Health Department (2012), ANC visit of pregnant mothers is predicted by several factors, including internal factors such as parity, mother's age, and external factors such as mother's knowledge, attitude, socioeconomic condition, socio-cultural, geographical, information and support from either health workers and family[9].

Based on the previous study by Riestiyani, Manuputty *et al.* (2016), factors such as parity, income, and health care facilities are related to the health care utilization by pregnant mothers[10]. The study from Hanna (2017) in Ethiopia obtain that factors related to a pregnant mother's visit are age, mother's education, knowledge, and family support[11]. Another study from Zeine (2010) in Ethiopia stated that parity support affects the pregnant mother's visit [12].

Based on the above description, the researcher is interested in studying the determinant factors of antenatal care visits of pregnant mothers in Dintor Public Health Center, Manggarai Regency.

OBJECTIVE

This study aimed to analyze pregnant mothers' determinant factors for visiting the antenatal care in Dintor Public Health Center, Manggarai Regency.

METHOD

A cross-sectional study design was applied in this study. Fifty-six mothers from Dintor Public Health Center were recruited by using the total sampling technique. This study was conducted in Dintor Public Health Center in 2 months, January-February 2019. Independent variables in this study were age, parity, education, working status, knowledge, and ANC quality of care, while the dependent variable was ANC visit.

The research instrument was a questionnaire with several questions to measure maternal knowledge used the Guttman scale with ten questions multiple choice. The knowledge variable is assigned a value of 1 for correct answers and 0 for incorrect answers. The knowledge assessment was divided into two if the score \geq of 50% was high and less if the respondent answered <50%. The validity and reliability of the questionnaire were conducted in this study. The Alpha Cronbach value of the knowledge variable was 0.76 (>0.60). Then it can be explained that this questionnaire is reliable to be used as a measurement tool in this study.

In conducting this research, the researcher received a recommendation from Nusa Cendana University and applied it to the Head of Dintor Public Health Center to obtain research approval. Ethics that must be done in research are informed consent, anonymity, and confidentiality.

This research was registered at the Health Research Ethics Commission Faculty of Medicine, Nusa Cendana University with Number: 13/UN15.16/KEPK/2019

RESULT

Respondents characteristics based on Age, Parity, Education, Working status, Knowledge, ANC Quality of Care, ANC Visits

Table 1 showed the respondents' characteristics based on age, parity, education, working status, knowledge, ANC quality of care, and ANC visits. The majority of respondents' ages were on 20-30 years old category as much as 57.1%. In parity, most of the respondents were in the

category of < 3 parity as much as 66.1%. The majority of respondents were in the higher education category, as much as 57.1%. The majority of respondents whose not working as much as 55.4%. The majority of the respondents had good knowledge of ANC visits, as much as 60.7%. ANC quality obtained by respondents mostly good and on the standard of care (10 T) as much as 64.3%. Respondents reported conducting ANC visits achieving K4 as much as 62.5%

Table 1. Respondents characteristics based on age, parity, education, working status, knowledge, anc quality of care, ANC visiting

Characteristics	Category	Frequency	Percentage (%)
Mother's age	20 – 35 years old	32	57.1
	< 20 and > 35 years old	24	42.9
Parity	< 3	37	66.1
	≥ 3	19	33.9
Education	High	32	57.1
	Low	24	42.9
Working status	Not working	31	55.4
	Working	25	44.5
Knowledge	Good (> 50%)	34	60.7
	Less (≤50%)	22	39.3
ANC quality of care	Good (achieving 10 T)	36	64.3
	Less (not achieving 10 T)	20	35.7
ANC visits	K4	35	62.5
	Non-K4	21	37.5

The relationship between mother's age, parity, education, working status, knowledge, quality of care with ANC visits

Table 2 showed the statistical test result that mother's age affecting the ANC visits with $p = 0.029$ ($p\text{-value} < 0.05$) with Odds Ratio was $3.545 >$. It was indicated that the pregnant mothers aged between 20-35 years old having a 3.545 higher chance to do antenatal care visits compared to mothers aged <20 and >35 years old. Parity variable affecting the ANC visits with $p = 0.027$ ($p\text{-value} < 0.05$) with Odds Ratio as much as 3.712, meaning that pregnant mothers with < 3 parity possess 3.712 higher chance to conduct ANC visits in comparison to mothers with ≥3 equality. Mother's education also significantly relates to ANC visit with $p = 0.007$ ($p\text{-value} < 0.05$) and Odds Ratio as much as 5.000, meaning that pregnant mothers with higher education have a 5.000 times more tendency to conduct ANC visits than mother with lower education. Mother's working status variable significantly affects the ANC visits with $p = 0.000$ ($p\text{-value} < 0.05$) and Odds Ratio as much as 24.000, meaning that non-working pregnant mothers tend to conduct ANC visits 24.000 times higher than working mothers. Mother's knowledge influence the ANC visits with $p = 0.000$ ($p\text{-value} < 0.05$) and Odds Ratio as much as 15.467, meaning that pregnant mothers with good knowledge on the importance of ANC visits tend to conduct the ANC visits 15.467 higher than mothers with less knowledge. The ANC quality of care significantly influenced the ANC visits with $p = 0.012$ ($p\text{-value} < 0.05$). Odds Ratio was 4.50 which is indicate that pregnant mothers who receive good standardized care (10T) possess a 4.500 times higher chance to conduct ANC visits than pregnant mothers who receive less standardized care.

Table 2. Bivariate test result of the effect of mother's age, parity, education, working status, knowledge, and quality of care on visiting the ANC

Variable	Visiting ANC				Total		B	p-value	Exp(B)
	K4		Non-K4						
	n	%	n	%	N	%			
Mother's age									
20 – 35 years old	24	75	8	25	32	100	1.266	0.029	3.543
< 20 and > 35 years old	11	45.8	10	54.2	24	100			
Parity									
< 3	27	73	10	27	37	100	1.312	0.027	3.712
> 3	8	42.1	11	57.9	19	100			
Education									
High	25	78.1	7	21.9	32	100	1.609	0.007	5.000
Low	10	41.7	14	58.3	24	100			
Working status									
Not working	28	90.3	3	9.3	31	100	3.178	0.000	24.000
Working	7	28	18	72	25	100			
Knowledge									
Good	29	85.3	5	14.7	34	100	2.739	0.000	15.467
Less	6	27.3	16	72.7	22	100			
ANC quality of care									
Good (achieving 10 T)	27	75	9	25	36	100	1.504	0.012	4.500
Less (not achieving 10 T)	8	40	12	60	20	100			

Multivariate Analysis

Table 3 showed that four variables are eligible to be tested on multivariate analysis, namely knowledge, working status, education, and ANC quality of care. From the four variables, the most substantial factor determining the ANC visits is ANC quality of care with Odds Ratio as much as 28.241, education variable with Odds Ratio as much as 25.946, and working status variable with Odds Ratio as much as 18.260. While knowledge variable is inconsistently significant when analyzed collectively with a p-value >0.05.

Table 3. Multiple Logistic Regression Test Result of Determinant Factors of ANC Visiting

Variables	B	Sig.	Exp(B)	95% C.I. for EXP(B)	
				Lower	Upper
Education	3.256	0.009	25.946	1.796	374.791
ANC Quality of Care	3.341	0.008	28.241	2.339	340.965
Working Status	2.905	0.017	18.260	2.108	158.144
Knowledge	2.119	0.089	8.321	0.724	95.685
Constant	-6.038				

DISCUSSION

The Effect of Mother's Age on ANC Visits

This study showed that a mother's age affects the antenatal care visit. Pregnant mothers in the no-risk age category of 20-35 years old were regularly conducted ANC visits compared to pregnant mothers in the risky age category less than 20 years old or more than 35 years old.

This study result is in line with the previous study by Usman *et al.* (2018) that stated a significant relationship between mother's age and ANC utilization [13]. Pregnant mothers aged 20-35 years old utilize

the ANC more than age-risk pregnant mothers who are less than 20 years old or more than 35 years old. The study by Paputungan (2016) stated that the mother's age relates to the pregnancy examination [14].

Age defines as individual age counted from birth until the recent birthday. The more mature the period is, the maturity and capability of an individual to think and work are also increasing. Thus, the maturity of thoughts motivates pregnant mothers to check their pregnancy and identify antenatal care's importance [15].

Age is an essential factor in determining a mother's health. A mother is at high risk of pregnancy if she is under 20 years old or more than 35 years old. Age less than 20 is concerning to the risk of complications related to woman reproductive system health. At the same time, more than 35 years old are at high risk for the decreasing function of the reproductive system. The safe age category for pregnancy and childbirth is between 20 to 30 years old. The maternal mortality rate on pregnant and birthing mothers is two to five times higher on those aged less than 20 compared to those aged 20-30 years old. The maternal mortality rate increases again over the age of 30-35 years old [15]. Green (1980) also explains that age and sociodemographic factors indirectly affect individual behavior [16].

The Effect of Parity on ANC Visits

The result of this study showed that there is an effect of parity on antenatal care visits. This study identifies that most mothers who perform ANC visits are pregnant mothers with lower parity (<3) than mothers with \geq three parity.

This study result is in line with the study by Riestiyani, Manuputty et al. (2016), who showed that the mother's parity significantly influences the ANC visit. This study stated that mothers with ≤ 2 parity routinely conduct ANC visits compared to mothers with > 2 parity [10]. Mothers with more parity cause this relies on the previous pregnancy experience. Thus, they tend to disregard routine antenatal care. This is also in line with a study from Agus *et al.* (2012) that obtain the effect of parity toward the ANC visit on pregnancy [17]. It is also supported by the study conducted by Wulandatika (2017) that finds the relationship between parity and mother's compliance on ANC visit [18].

These findings are in line with a theory by Notoatmodjo (2012) that parity is one of the predisposing factors that influence the mother's behavior on utilizing health services, in this case, the K4 antenatal care [19]. According to Padila (2014), first-time pregnant mothers experience new life events, thus motivating them to check their pregnancy to health workers. Meanwhile, mothers with more than one childbirth experience assume that they are experienced, so they are less motivated to prevent pregnancy [15]. Parity is a condition on the number of a child being born by a woman. A woman with high parity is defined as a woman with > 2 children, and low parity means ≤ 2 children [20].

The Effect of Education on K4 ANC Visits

This study result showed the existence of influence of mother's education and the antenatal care visit. The majority of mothers who conduct antenatal visit regularly is a mother with higher education. Mothers with low education tend to perform antenatal care visits irregularly. This showed that mothers with higher education prone to have a better view of the importance of pregnancy examination.

This study result is in line with the previous study by Nwosu (2012) that identifies the significant relationship between mother's education and antenatal care utilization. This study underlines that the more pregnant mothers' education is, the more frequent they are to come to health facilities to check their pregnancy [21]. This study is also supported by a study conducted by Yosina Orboi *et al.* (2019), which proved that the mother's education influence the K4 ANC visit. This study describes that mothers with higher education possess more supportive thoughts on pregnancy examination than mothers with lower education. Besides, a higher education mother tends to decide on behavior advocating pregnancy check [22] rationally.

This study result is in line with Notoatmodjo (2014), which quotes that low education among mothers leads to the lack of awareness of health, including the importance of antenatal care visits [23]. According to Walyani (2014), mothers' education intensely influences their behavior and the finding of their daily life problem-solving. Thus, they will regularly check their pregnancy to maintain their health and fetal's health. On mother with lower education, the lack of information on their health status make them unaware of the proper pregnancy care and further affect the pregnancy visit [20].

The Effect of Working Status on ANC Visit

This study result showed that the mother's working status influences the antenatal care visit. In this study, most mothers with regular antenatal care visits are among mothers with no working status than mothers with working status.

This study result is in line with a study conducted by Indrastuti *et al.* (2019) that found the relationship between a mother's occupation and antenatal care utilization [24]. The study from Riestiyani, Manuputty (2016) showed that occupation is an essential factor determining the number of antenatal care visits [10]. It is supported by the study from Rumbewas (2015) that showed the effect of occupation on K1 and K4 visits in Kanda Public Health Center, Jayapura Regency[25]. According to the study by Inayah (2019), working pregnant mothers have lesser time to check their pregnancy because they have to ask permission to leave the work time. A working pregnant mother prioritizes their time on working rather than on antenatal care visits [26].

This finding is in line with the theory from Notoatmodjo (2014) that occupation can affect an individual's spare time on obtaining multiple information. Mother's occupation is defined as mother's activity outside or inside home except for the routine housework to obtain family income. Working mothers would have lesser time to check their pregnancy and spend more on working. Meanwhile, the non-working mother will have more time to check their pregnancy[23].

The Effect of Mother's Knowledge on ANC Visits

The result of this study showed that the mother's knowledge is related to antenatal care visits. In this study, most mothers with regular antenatal care visits are mothers with good knowledge of antenatal care. A pregnant mother with less knowledge tends to conduct antenatal care visits irregularly.

This study result is in line with a study from Yosina Orboi *et al.* (2019) that proved mothers' knowledge on the pregnancy examination. This study showed a significant relationship between mother's knowledge and K4 pregnancy examination, where respondents with good knowledge tend to conduct K4 visits more than respondents with less knowledge [22]. It is supported by the study from Nur (2019) that stated that there is a significant relationship between knowledge and antenatal care visit [27]. The said study explains that the higher someone's knowledge of pregnancy examination is, the complete antenatal care. A study from Saragih (2018) also proved the significant effect of mothers' education and pregnancy care. According to Saragih's study, mother's knowledge of ANC and the importance of pregnancy examination affecting the mother's health-seeking behavior by checking the pregnancy to health workers, a mother with less knowledge on ANC would tend to conduct routine ANC than a mother with sufficient knowledge [28].

This study result is in line with the theory that mothers with good knowledge attain their understanding of pregnancy examination through health education or information from mass media, namely the adoption phase. In this phase, mothers aware of the meaning of stimulus in the form of intention without followed by attitude and behavioral change. Obtaining the information could guarantee an individual to act based on the knowledge they get (Indriyani dan Asmuji, 2014) [29]. Green on Notoatmodjo (2012) stated that knowledge is an essential domain in developing an individual's behavior. If the behavior is based on knowledge, awareness, and a positive attitude,

the behavior is more long-lasting [19].

The Effect of ANC Quality of Care on ANC Visit

This study showed that ANC quality of care affecting the antenatal care visit. In this study, the respondents who obtain a good quality of antenatal care regularly perform antenatal care visits than respondents who receive a low antenatal care quality.

This study result is in line with the study from Patria (2018) showed that there is a relationship between antenatal care quality with the completeness of antenatal care visits [30]. Respondents who regard the quality of antenatal care as good quality tend to perform more regular antenatal care visits than respondents who rate the antenatal care as low. A similar study conducted by Wulandatika (2017) showed the relationship between quality of care and mother's compliance on antenatal care exists [18]. This finding is in line with the theory stated by Azwar (2010) that the health care quality that refers to the perfection of care always facilitating patient's satisfaction. Thus the patient would utilize the health care more [31].

The quality of antenatal care plays an essential role in decreasing infant and maternal mortality rates through professional and qualified antenatal care. Pregnant mothers obtain health education on maintaining their pregnancy healthy, preparing for the safe and healthy baby delivery. Increasing the awareness and knowledge on the possibility of risks or complications in pregnancy, so the optimal mother health is maintained to prepare for the delivery and postpartum period[5].

According to Indonesian Health Department (2012), the good quality of care is the one that complies with the minimum integrated antenatal care "10T," including weighing and measuring heights, measuring blood pressure, assessing nutritional status, measuring fundal height. In addition, determine the fetus' presentation and fetal heart rate, tetanus toxoid immunization, providing iron tablets, laboratory examination, case management, counseling including the birth plan and complication prevention and postpartum birth control/ family plan program [9].

Determinant Factors of Antenatal Care Visit

The multivariate analysis result using multiple logistic regression showed that the variable that influences the antenatal care visit the most in Dintor Public Health Center is ANC quality of care, education, and working status. ANC quality of care variable significantly impacts the ANC visit with $p = 0.008$ and Odds Ratio as much as 28.241. It was indicated that mothers who obtain a good quality of care on ANC visit tend to regularly perform ANC visit 28.241 times higher than mothers who experience low ANC quality. Education variables significantly affect ANC visits with $p = 0.009$ and Odds Ratio as much as 25.946, meaning that pregnant mothers with higher education have a 25.946 times higher chance to perform regular ANC visits than mothers with low education. The other variable that impacts ANC visit is working status with $p = 0.017$ and Odds Ratio as much as 18.260, meaning that not working mothers have an 18.260 times higher chance to conduct ANC visit than mothers who work. Meanwhile, the knowledge variable does not consistently significantly affect ANC visit in the pooled analysis test with a p -value >0.05 and precisely $p = 0.089$.

CONCLUSION

In this study, several factors are determining the antenatal care visit of pregnant mothers, namely mother's age, parity, education, working status, knowledge, and ANC quality of care. Mothers who regularly perform ANC visits are mostly in the no-risk age category (20-35 years old), a mother with parity <3 , and a higher education mother. A mother who is not working, a mother with adequate knowledge, and a mother who receives good quality antenatal care from health workers.

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