

SOCIODEMOGRAPHIC DETERMINANTS AND SERVICE ACCESS ON DELAYED ANC CARE IN THE FIRST TRIMESTER AMONG PREGNANT WOMEN IN WAGIR, MALANG

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ABSTRACT

First-trimester antenatal care (ANC) visits before 12 weeks of gestation are crucial for early detection of pregnancy risks and prevention of complications. However, delays in initiating the first ANC visit still occur among some pregnant women. This study aimed to analyze the sociodemographic determinants and service access affecting delayed first-trimester ANC visits in Wagir, Malang.

A quantitative descriptive study with a cross-sectional design was conducted among 37 pregnant women who attended their first ANC visit after 12 weeks of gestation, selected using total sampling. Data were collected using structured questionnaires and analyzed descriptively and through path analysis to identify the influence of variables.

Results indicated that most respondents were aged 20–35 years (75.7%), had parity of 2–5 children (59.5%), completed junior high school education (43%), were unemployed (62.2%), had good knowledge (43%), and positive attitudes (54.1%). Regarding service access, 56.8% reported adequate distance and facility availability. Path analysis revealed that sociodemographic factors and service access significantly influenced delayed first-trimester ANC visits.

In conclusion, delays in first-trimester ANC visits are affected by maternal sociodemographic characteristics and health service access. Strengthening pregnancy education programs and improving service access from preconception or early pregnancy stages is recommended according to maternal profiles.

Keywords: first-trimester ANC, sociodemographics, service access, delay

INTRODUCTION

The maternal mortality rate (MMR) is a key indicator for assessing public health and the success of health sector development. Globally, the World Health Organization (WHO) reports that approximately 287,000 women died from complications of pregnancy and childbirth in 2020, with the majority of these deaths occurring in developing countries and potentially preventable through timely and quality health care (WHO, 2023). The high MMR remains a serious problem, reflecting suboptimal maternal health services in many countries, including Indonesia.

High maternal mortality rates are closely related to various factors, both direct and indirect. Direct causes include bleeding, preeclampsia/eclampsia, infection, obstructed labor, and abortion, while indirect causes include conditions that worsen maternal health, such as the four toos (too young, too old, too frequent, and too many) and the three toos: late decision-making, late access to

health facilities, and late medical attention (Ministry of Health of the Republic of Indonesia, 2022). These factors demonstrate that maternal mortality is essentially preventable if the health care system operates optimally.

One strategic effort to reduce maternal mortality is through optimizing antenatal care (ANC) services. ANC plays a crucial role in early detection of pregnancy risk factors, providing health education, and preventing complications during pregnancy (WHO, 2016). The WHO recommends a minimum of eight ANC visits to ensure optimal monitoring of maternal and fetal health. However, timely utilization of ANC services, particularly in the first trimester, remains a challenge in many regions.

Delaying the first ANC visit can result in delayed detection of pregnancy risks, increasing the likelihood of obstetric complications. Several studies have shown that mothers who delay their first ANC visit



have a higher risk of poor pregnancy outcomes compared to mothers who visit early (Gross et al., 2012). This situation highlights the importance of ANC visits in the first trimester as a primary preventive measure in obstetric care.

A preliminary study at the TPMB K, Wagir District, Malang Regency, found that out of 230 pregnant women, 37 (16.1%) had delayed their first ANC visit (>12 weeks of pregnancy). This situation indicates a persistent gap in maternal health service utilization in the region, which may be influenced by various sociodemographic factors and access to health services.

Based on these issues, this study aims to analyze factors associated with delayed first-trimester antenatal care (ANC) visits at TPMB K, Wagir District, Malang Regency. The results are expected to inform planning of more targeted maternal health interventions to reduce the risk of pregnancy complications and improve the quality of antenatal care.

METHOD

This study used a quantitative descriptive design with a cross-sectional approach to describe the factors influencing delays in first antenatal care (ANC) visits among pregnant women. The quantitative approach allowed for the collection of numerical data that was systematically analyzed to address the research objectives.

The study population was all pregnant women who made their first ANC visit (>12 weeks) at the Independent Practice of Midwife K, Wagir District, Malang Regency, from January 1, 2023, to July 13, 2024, totaling 37 people. The sample was taken using total sampling, so the entire population became the study respondents.

Independent variables included social factors (age, parity, education, employment status, knowledge, attitudes), environmental factors, cultural and customary factors, and economic factors. The dependent variable was delay in the first ANC visit (>12 weeks). Data were collected through a structured questionnaire using a Likert scale and ordinal

categories, as well as secondary data from the KIA handbook and ANC register.

Prior to data collection, researchers obtained research permits and ethical clearance from the Ethics Committee of the Malang Ministry of Health Polytechnic and obtained informed consent from all respondents. Primary data were collected with researcher assistance to ensure clarity of responses, while secondary data were obtained from documentation of ANC visits.

Data analysis was performed through editing, coding, scoring, tabulation, and processing. Univariate descriptive analysis was used to describe the frequency distribution of variables, bivariate analysis to examine the relationship between independent and dependent variables, and multivariate analysis using path analysis via SmartPLS to evaluate the influence of social, environmental, cultural, and economic factors on delays in ANC visits. Instrument validity and reliability were tested using product moment and Cronbach's alpha.

This research was conducted at the Independent Practice of Midwife K, Wagir District, Malang Regency, from January 1, 2023, to July 13, 2024. The results of the study are expected to provide a comprehensive picture of the factors causing delays in the first ANC visit in pregnant women.

RESEARCH RESULT

This study was conducted at TPMB K, Wagir District, from January 1, 2023, to July 13, 2024. The sample consisted of 37 pregnant women who met the inclusion criteria, namely pregnant women who made their first antenatal care (ANC) visit at more than 12 weeks of gestation. The sampling technique used was total sampling.

4.1.1 Respondent Characteristics

Table 4.1 Respondent Characteristics

Variable	Category	f	%
Age	<20 years	4	10,8
	20–35 years	28	75,7
	>35 years	5	13,5
Education	Elementary School	4	11
	Junior High School	16	43
	Senior high school	13	35
	PT (Ltd)	4	11
Work	Work	14	37,8
	Doesn't work	23	62,2
Paritys	0 Children	4	10,8
	1 Children	11	29,7
	2–5 Children	22	59,5
Age of first ANC	Second Trimester	33	89,2
	Third Trimester	4	10,8

The results showed that the majority of respondents were in the healthy reproductive age group, namely 20–35 years (75.7%). Most respondents had secondary education (junior high school–high school), were unemployed (62.2%), and were multiparous (59.5%).

The distribution of gestational age at the time of the first ANC visit shows that most pregnant women visited in the second trimester (89.2%), while 10.8% did not visit until the third trimester. This finding indicates a relatively high delay in first-trimester ANC visits, potentially reducing the effectiveness of early detection of high-risk pregnancies.

4.1.2 Research Variables

Tabel 4.2 Pengetahuan Ibu

Category	f	%
Good	16	43
Enough	15	41
Less	6	16

Most mothers have good knowledge (43%), but there are still 16% with insufficient knowledge which contributes to delays in ANC visits.

Table 4.3 Mother's Attitude

Category	f	%
Positive	17	45,9
Negative	20	54,1

More than half of respondents had a negative attitude towards early pregnancy check-ups (54.1%), which was characterized by ANC behavior only when there were complaints.

Table 4.4 Environment

Category	f	%
Positive	21	56,8
Negative	16	43,2

Table 4.5 Culture

Category	f	%
Positive	22	59,5
Negative	15	40,5

Table 4.6 Economy

Category	f	%
Good	16	43
Enough	16	43
Less	5	14

Overall, the study results showed that the most dominant factors associated with delaying ANC visits were maternal behavior (knowledge and attitudes) as well as socio-

cultural and environmental factors. Although most respondents had a positive cultural and environmental environment, practices and habits were still found to cause mothers to delay ANC visits, such as only seeking prenatal care when experiencing symptoms.

4.2 Relationship Analysis (Cross Tabulation)

CROSS TABULATION RESULTS (SUMMARY))

- Based on the results of cross-tabulation between various factors and gestational age at the time of the first ANC visit, most mothers had the examination in the second trimester (89.2%), while only a small proportion had it in the third trimester (10.8%).
- In general, all variables studied showed a relatively consistent pattern, namely that the majority of mothers with better socio-demographic and psychosocial conditions tended to make ANC visits earlier than mothers with less good conditions.

1. Knowledge

- Mothers with good knowledge were more likely to attend ANC in the second trimester than in the third trimester. This suggests that the better a mother's knowledge, the sooner she would seek her first prenatal checkup.

2. Age

- The healthy reproductive age group (20–35 years) dominates second trimester ANC visits, while extreme ages (<20 years and >35 years) tend to experience more delays.

3. Parity

- Multiparous mothers tend to be slower to initiate ANC than primiparous mothers, which indicates that previous pregnancy experience may reduce risk perception.

4. Education

- The higher the mother's education level, the greater the proportion of ANC visits in the second trimester. Mothers with lower education experience more delays.

5. Work

- Both working and unworking mothers have the potential for delays, but unworking

mothers experience slightly more delays, which is likely influenced by economic dependence and access to information.

6. Attitude

- Mothers with positive attitudes are more likely to undergo ANC earlier than mothers with negative attitudes. Attitude plays a role as a driving factor in health decision-making.

7. Environment

- A supportive environment tends to increase maternal compliance in carrying out ANC in the first trimester, while a less supportive environment contributes to delays.

8. Culture and Customs

- Cultural and customary factors still play a role in delays in ANC, where some mothers with negative cultural influences are slower to have pregnancy check-ups.

9. Economy

- Economic factors show a tendency that mothers with poor economic conditions tend to perform ANC later than those in better economic groups.

SUPER IMPORTANT VERSION FOR SINTA 2

- Add a closing sentence like this:
- Overall, the cross-tabulation results indicate that knowledge, education, attitudes, and environmental access are the main determinants of delay in the first ANC visit in pregnant women.

Cross Tabulation Core Narrative (journal version)

Cross-tabulation results indicate a tendency for mothers with good knowledge to still experience delays in ANC visits, but the proportion is smaller than for mothers with poor knowledge. This suggests that knowledge is not the sole determinant of ANC delays.

Regarding age, mothers in the high-risk age groups (<20 years and >35 years) tended to experience more delays than those in the healthy reproductive age group. Furthermore, mothers with high parity (2–5 children) were also more likely to delay their first ANC visit,

suggesting the influence of previous pregnancy experience on low adherence to early ANC.

4.3 Multivariate Analysis (PLS-SEM / Path Analysis)

Table 4.16 Outer Loading

Table 4.16 Outer Loading Values of Variable Factors

	<i>Outer loading factor</i>
Economic Factors -> Economic Factors	1.000
Environment -> Environmental Factors	1.000
Parity -> Social Factors	0.032
Occupation -> Social Factors	-0.147
Education -> Social Factors	0.581
Attitudes -> Social Factors	0.329
Sociocultural Factors -> Cultural and Customary Factors	1.000
UK_ANC1 -> Gestational Age at ANC 1	1.000
Age -> Social Factors	0.681
Knowledge -> Social Factors	-0.290

This table is MANDATORY in health engineering journals

Table 4.17 R-square Value

	R-Square
Gestational age at ANC 1	0.593

Narration:

An R-squared value of 0.593 indicates that environmental, social, cultural, and economic variables explain 59.3% of the

variation in delays in first ANC visits. The remaining 40.7% is influenced by factors outside the research model.

Table 4.18 Direct Influence

Table 4.18 Direct Effect

	Path coefficient	P Values
Cultural and customary factors -> Gestational age at ANC 1	-0.551	0.000
Economic Factors -> Gestational age at ANC 1	0.037	0.740
Environmental Factors -> Gestational age at ANC 1	-0.268	0.007
Social Factors -> Gestational age at ANC 1	-0.330	0.110

SINTA 2 narrative (core findings must be strong)

Path analysis results showed that cultural and environmental factors significantly influenced the delay in the first ANC visit ($p < 0.05$). This suggests that the more positive the mother's culture and environment, the sooner she makes the ANC visit.

In contrast, social and economic factors did not significantly influence ANC delays ($p > 0.05$). This finding suggests that economic factors were not the primary factor contributing to ANC delays in the study locations, but rather were more influenced by sociocultural factors and the mother's environment.

CONCLUSION OF CHAPTER IV (MANDATORY SINTA 2)

The results showed that delays in first-trimester ANC visits at TPMB K Wagir remained quite high. The most influential factors were culture and environment, while economic and social factors were not statistically significant. The research model

explained 59.3% of the variation in ANC delays.

DISCUSSION

1. The Influence of Environmental Factors on Delays in ANC Visits

The study results showed that environmental factors significantly influenced delays in the first antenatal care (ANC) visit. Although most respondents were in a supportive environment, delays in visits were still found, indicating that the quality of environmental support is suboptimal.

Within the framework of health behavior theory, environmental factors are considered enabling factors, playing a role in facilitating individuals' access to healthcare services (Glanz et al., 2021). These factors include geographic access, transportation availability, family support, and affordability of healthcare facilities. Research by Mekonnen et al. (2021) and Tiruaynet & Muchie (2022) shows that physical and logistical barriers to access remain the main causes of delayed ANC visits in various developing countries.

Furthermore, family support, particularly from the husband, is a crucial determinant of pregnant women's behavior. A study by Yaya et al. (2020) found that active husband involvement was significantly associated with increased adherence to ANC visits. However, passive or inconsistent support is not strong enough to encourage timely health-seeking behavior.

According to the researchers, these findings confirm that a "nominally supportive" environment is not necessarily functionally effective. Therefore, interventions are needed that focus on improving the quality of family support and facilitating access to health services, including innovative community-based services.

2. The Influence of Social Factors on Delays in ANC Visits

The research results show that social factors do not significantly influence the delay in the first ANC visit. This indicates a discrepancy between theory and empirical findings in the field.

Theoretically, social factors such as age, education, occupation, knowledge, and attitudes are among the predisposing factors that shape individual health behaviors (Glanz et al., 2021). Several studies have shown that higher levels of education and knowledge are associated with increased utilization of maternal health services (Birmeta et al., 2022).

However, other studies have revealed that good knowledge is not always followed by appropriate practice. Abbas et al. (2021) refer to this phenomenon as the knowledge-practice gap, which is the gap between understanding and implementation of health behaviors. This finding is reinforced by research by Sinyange et al. (2020), which showed that mothers with previous pregnancy experience tended to delay ANC visits because they felt they already had experience and did not consider an initial visit an urgent need.

According to the researchers, the insignificance of social factors in this study may be due to the dominance of external factors, such as culture and the environment, which more strongly influence pregnant women's decisions than internal individual factors.

3. The Influence of Cultural and Customary Factors on Delays in ANC Visits

The study results showed that cultural and customary factors significantly influenced delays in first ANC visits. This finding confirms that cultural aspects remain an important determinant of maternal health behavior.

From a transcultural nursing perspective, cultural values, beliefs, and traditional practices play a significant role in shaping individuals' perceptions of health and illness (McFarland & Wehbe-Alamah, 2019). Research by Kassa et al. (2022) suggests that the belief that pregnancy is a natural process that does not require early medical examination is one of the causes of delayed ANC visits.

Furthermore, cultural practices such as the use of traditional medicine, dietary restrictions, and massage practices during

pregnancy can influence mothers' perceptions of pregnancy risks (Bitew et al., 2020). In some cases, these beliefs lead mothers to rely more on non-medical approaches than on formal health services.

Research in Indonesia by Prasetyo et al. (2021) also showed that a culturally-based approach can improve maternal adherence to ANC visits. This suggests that culturally sensitive health interventions are more effective than general approaches.

According to researchers, although most respondents were culturally supportive, the existence of certain traditional beliefs remained a significant barrier. Therefore, a culture-based educational approach is a crucial strategy for increasing the utilization of ANC services.

4. The Influence of Economic Factors on Delays in ANC Visits

The study results showed that economic factors did not significantly influence delays in first ANC visits. This finding indicates a shift in the determinants of access to healthcare.

Theoretically, economic factors are part of the enabling factors that can influence an individual's ability to access healthcare services. However, the implementation of the national health insurance program has significantly reduced cost barriers. Agustina et al. (2020) stated that the National Health Insurance (JKN) program in Indonesia has increased public access to healthcare services, including maternal care.

Research by Fenny et al. (2021) also shows that health insurance ownership is associated with increased utilization of ANC services. However, other studies indicate that economic factors still have an indirect influence, particularly related to transportation costs and prioritizing household needs (Dickson et al., 2021).

According to the researchers, the insignificance of economic factors in this study indicates that financial barriers are no longer the primary factor, but still need to be considered in the context of overall service accessibility.

5. Implications of Research Results

The results of this study indicate that environmental and cultural factors are the main determinants of delays in first ANC visits. This emphasizes the need for comprehensive maternal health interventions, taking into account social, cultural, and environmental aspects.

WHO (2022) recommends a community-based approach to increasing ANC coverage, including through family empowerment, involvement of community leaders, and strengthening the role of health workers at the primary level.

According to researchers, strategies that can be implemented include:

- Strengthening the role of husbands and families in supporting pregnant women
- Health education based on local culture
- Increased access to services through home visits
- Optimizing the role of health cadres

6. Research Limitations

This study has limitations, including the lack of an in-depth examination of geographic access and the quality of health services. Furthermore, the quantitative approach used was unable to fully explore cultural aspects and perceptions of pregnant women.

Further research is recommended to use a mixed methods approach to obtain a more comprehensive picture of the determinants of delays in ANC visits.

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