

FACTORS INFLUENCING THE UTILIZATION OF ANTENATAL CARE (K4) IN PREGNANT WOMEN AT THE PONDOK MEJA COMMUNITY HEALTH CENTER, MUARO JAMBI REGENCY IN 2024

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Abstract

Antenatal care is a service provided to pregnant women, including physical and psychological health monitoring, fetal growth and development assessment, and preparation for labor and delivery. According to data from the World Health Organization (WHO), an estimated 500 women die each day due to complications related to pregnancy and childbirth. A decrease in the utilization of antenatal care visits has been observed at the Pondok Meja Health Center. Therefore, this study aims to identify the factors associated with the utilization of antenatal care at the Pondok Meja Health Center. This study employed a quantitative method with a cross-sectional design, using univariate, bivariate, and multivariate data analyses. The research sample consisted of mothers with children under six months of age within the working area of the Pondok Meja Health Center between September 2024 and January 2025. A total of 145 respondents were selected using a stratified sampling method. Several variables were found to be significantly associated with the utilization of antenatal care services, including employment status ($p = 0.003$) and health workers ($p = 0.002$). Meanwhile, variables not significantly associated included age ($p = 0.128$), parity ($p = 0.392$), education level ($p = 1.000$), knowledge ($p = 0.127$), family support ($p = 0.496$), disease history ($p = 0.896$), and satisfaction level ($p = 0.070$). The most influential factor was employment status ($PR = 3.276$). Both employment status and health workers play a role in the declining utilization of antenatal care services, with employment status identified as the most dominant risk factor.

Keywords: Antenatal Care, Pregnant Women, Utilization

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INTRODUCTION

In 2021, the global maternal mortality rate (MMR) was 223 per 100,000 live births. According to the World Health Organization (WHO), an estimated 800 women die every day from preventable complications related to pregnancy and childbirth. Furthermore, approximately 95% of maternal deaths occur in low- and lower-middle-income countries (1). According to the Maternal Perinatal Death Notification (MPDN), the Ministry of Health's official maternal death reporting system, the number of maternal deaths in Indonesia was 4,005 in 2022 and increased to 4,129 in 2023. Meanwhile, the number of infant deaths was 20,882 in 2022 and rose significantly to 29,945 in 2023 (2).

Antenatal care (ANC) standards are designed to address community health needs and to ensure the provision of high-quality maternal services. Initially, ANC services comprised the "7T" components: blood pressure measurement, weight monitoring, uterine fundal height assessment, complete tetanus toxoid (TT) immunization, screening for sexually transmitted infections (STIs), provision of at least 90 iron tablets during pregnancy, and counseling for referral preparedness. These standards were later expanded into the "10T" components by

incorporating routine laboratory examinations, fetal presentation and heart rate assessments, and nutritional status evaluation. In 2010, the Indonesian government further updated the ANC standards to include the "14T" components, aiming to enhance the quality of maternal and fetal care (3).

In 2023, Jambi Province occupied the 7th highest position among other provinces. In the fourth visit (K4), antenatal care reached 88.7% of the target set at 90%. The fourth visit (K4) of antenatal care in Jambi Province in 2021 achieved a rate of 96.6%, which decreased to 87.29% in 2022 (4). In 2021, antenatal care visits in Muaro Jambi Regency, especially in the fourth visit (K4), reached 96.6%. Continued in 2022, antenatal care visits in the fourth visit (K4) reached 87.29%. In 2024, antenatal care visits in the fourth visit (K4) reached 39.24%.

Andersen (1973) developed a behavioral model of health service utilization, which categorizes the determinants into three main components: predisposing, enabling (support), and need factors. These components serve as the core framework for understanding individual health service use (5). Several previous studies have identified age, education, and occupation as factors associated with antenatal care (ANC) utilization (6,7). Awalia (2022) reported a significant association between parity and the use of ANC (8). Zakkiyamani (2023) identified a relationship between maternal medical history and ANC attendance (9). Alviani (2021) also highlighted the role of family support in influencing ANC visits (10), while Aisyah (2021) demonstrated that satisfaction levels significantly affect ANC utilization (11).

Based on interviews conducted with the midwife coordinator at Pondok Meja Health Center, it was revealed that the number of fourth antenatal care (K4) visits had declined in recent years. This decline was attributed to the fact that most pregnant women attended only the initial antenatal visit (K1) in the first trimester. Limited accessibility was cited as a contributing factor. Additionally, the Pondok Meja Health Center continues to implement the 10T standard for antenatal care, rather than the updated 14T protocol. Among the 24 health centers in Muaro Jambi Regency, Pondok Meja Health Center recorded the lowest K4 visit rate.

Referring to previous studies, factors such as age, parity, education level, employment status, knowledge, family support, medical history, satisfaction level, and antenatal care practices have been shown to have varying associations with the utilization of antenatal care services. Given these inconsistencies, the present study aims to re-examine the factors influencing the utilization of fourth antenatal care (K4) visits at the Pondok Meja Health Center, Muaro Jambi Regency, Jambi Province, in 2024.

METHODS

This study used a quantitative approach with a cross-sectional design. The population consisted of mothers with infants aged less than six months who attended integrated health posts within the working area of the Pondok Meja Health Center. A total of 145 respondents were selected using stratified sampling. Data were analyzed using univariate analysis, bivariate analysis with the Chi-square test (significance level <0.05), and multivariate analysis using multiple logistic regression. Variables with a p-value <0.25 in the bivariate analysis were included in the multivariate model.

RESULTS

Based on Table 1, the majority of respondents (60%) utilized antenatal care services. Univariate analysis revealed that 77.2% of the respondents were aged 20–35 years, and 97.2% had no parity. Regarding education level, most respondents (82.8%) had a low level of formal education. In terms of employment status, 78.6% of the individuals were unemployed. Furthermore, 51.7% of respondents demonstrated good knowledge about antenatal care. The majority (66.2%) reported receiving family support, while 67.6% perceived the quality of antenatal services they received as good. In terms of medical history, 77.2% reported no health complaints or complications during pregnancy. Additionally, 64.8% of respondents expressed satisfaction with the antenatal care services received.

Table 1. Characteristics of Respondents

Variable	n= 145	Percentage (%)
Antenatal Care Utilization		
Underutilized	58	40
Utilized	87	60
Age		
<20 years or >35 years	33	22,8
20-35 years	112	77,2
Parity		
Parity	4	2,8
No Parity	141	97,2
Education Level		
Low Education	120	82,8
High Education	25	17,2
Employment Status		
Employed	31	21,4
Unemployed	114	78,6
Knowledge		
Poor Knowledge	70	48,3
Good Knowledge	75	51,7
Family Support		
Less Supportive	49	33,8
Supportive	96	66,2
Antenatal Care		
Poor Antenatal Care	47	32,4
Good Antenatal Care	98	67,6
Medical History		
With Complaints/disorders	27	18,6
Without Complaints/disorders	118	81,4
Satisfaction Level		
Dissatisfied	51	35,2
Satisfied	94	64,8

Table 2. Bivariate Analysis of the Relationship between Age, Parity, Education Level, Employment Status, Knowledge, Family Support, Antenatal Care, Medical History, and Satisfaction Level with the Utilization of Antenatal Care

Variable	Utilization of Antenatal Care						p value
	Underutilized		Utilized		Total		
	n	%	n	%	N	%	
Age							
<20 years or >35 years	17	51,5	16	48,5	33	100	0,182
20-35 years	41	36,6	71	63,4	112	100	
Parity							
Parity	3	75	1	25	4	100	0,352
No Parity	55	39	86	61	141	100	
Education Level							
Low Education	48	40	72	60	120	100	1,000
High Education	10	40	15	60	25	100	
Employment Status							
Employed	20	64,5	11	35,5	31	100	0,003
Unemployed	38	33,3	76	66,7	114	100	
Knowledge							
Poor Knowledge	33	47,1	37	52,9	70	100	0,127
Good Knowledge	25	33,3	50	66,7	75	100	
Family Support							
Less Supportive	22	44,9	27	55,1	49	100	0,496
Supportive	36	37,5	60	62,5	96	100	
Antenatal Care							
Poor Antenatal Care	28	59,6	19	40,4	47	100	0,002
Good Antenatal Care	30	30,6	68	69,4	98	100	
Medical History							
With Complaints/disorders	10	37	17	63	27	100	0,896
Without Complaints/disorders	48	40,7	70	59,3	118	100	
Satisfaction Level							
Dissatisfied	26	51	25	49	51	100	0,070
Satisfied	32	34	62	66	94	100	

Table 3. Bivariate Selection for Factors Associated with Antenatal Care Utilization

Variable	P-Value
Age	0,127
Parity	0,149
Education Level	1,000
Employment Status	0,002
Knowledge	0,727
Family Support	0,391
Antenatal Care	0,089
Medical History	0,001
Satisfaction Level	0,048

Based on Table 4, the results of the multivariate analysis showed that employment status and antenatal care services were significantly associated with the utilization of antenatal care. Among these, employment status was the most influential variable, with a prevalence

ratio (PR) of 3.276. This indicates that working respondents were 3.276 times more likely to underutilize antenatal care services compared to non-working respondents.

Table 4. Final Model of Factors Associated with Antenatal Care Utilization

Variable	p-value	PR (95% CI)
Employment Status	0,007	3,276 (1,372-7,805)
Antenatal Care	0,010	3,017 (1,298-7,014)
Satisfaction Level	0,914	1,047 (0,452-2,427)

DISCUSSION

Antenatal Care Utilization

In terms of antenatal care (ANC) utilization, 52 respondents (35.9%) reported utilizing ANC services four times during pregnancy, 41 respondents (28.3%) utilized ANC fewer than four times, 35 respondents (24.1%) utilized ANC more than four times, and 14 respondents (9.7%) reported only one ANC visit throughout their pregnancy. The findings of this study are consistent with those of Alviani (2021), who conducted research at the Galang Health Center in Galang District, Deli Serdang Regency. In her study, 77 out of 122 respondents (63.1%) utilized antenatal care services, while 45 respondents (36.9%) did not (10).

Although the majority of respondents in the present study had utilized ANC services, a number of them had not fully adhered to the recommended schedule, particularly during the second trimester. Incomplete ANC visits were often due to respondents seeking care only when experiencing pregnancy-related complaints. Respondents who reported a single ANC visit commonly cited accessibility issues, such as long distances, poor road conditions, and the lack of transportation options. The absence of online transportation services like Maxim, Grab, or Gojek in the study area further contributed to this challenge.

Additionally, multiparous respondents—especially those with more than three children—tended to underutilize ANC services. This was attributed to the perception that their previous pregnancies had been uneventful, leading them to believe that they had sufficient experience in managing their pregnancy independently. As a result, they were more likely to seek ANC services only in the later stages of pregnancy, typically close to delivery.

Relationship between Employment Status and Antenatal Care Utilization

The majority of respondents were unemployed, totaling 114 individuals (78.6%). Among those who were employed, 10 respondents (6.9%) worked as private employees, 8 (5.5%) as traders, 6 (4.1%) as teachers, 5 (3.4%) as laborers, and 2 (1.4%) as online shop workers. The findings of this study align with previous research by Sulastri (2023), which demonstrated a statistically significant relationship between employment status and antenatal care utilization ($p = 0.001$). Comparable results were reported by Joece et al. (2022), with a p-value of 0.006, reinforcing the significance of employment status in influencing maternal health service utilization (13).

This study identified several categories of employment status among respondents, including civil servants, teachers, private employees, laborers, online shop workers, traders, and unemployed individuals (primarily housewives). Findings indicate that unemployed

respondents were more likely to utilize antenatal care services, likely due to greater availability of time to attend check-ups. The limited operating hours of the Pondok Meja Health Center—Monday to Thursday from 08:00 to 13:00, Friday from 08:00 to 11:00, and Saturday from 08:00 to 12:00, with closure on Sundays—pose a challenge for employed women. Additionally, long distances to the health center further limit access. Consequently, working mothers often seek alternative antenatal care options, such as private physicians, village midwives, or 24-hour healthcare facilities.

Relationship between Antenatal Services and Antenatal Care Utilization

In the antenatal care variable, 19 items were assessed using yes/no responses. Among these, the item with the lowest "yes" response was related to health cadres visiting respondents' homes to encourage antenatal check-ups, with only 39 respondents (26.9%) answering "yes" and 106 respondents (73.1%) answering "no." Statistical analysis yielded a p-value of 0.002, indicating a significant relationship between health worker engagement and antenatal care utilization ($p < 0.05$).

These findings align with the study conducted by Syifa (2022), which reported a significant association between health worker services and antenatal care utilization ($p = 0.021$) (8). The role of health workers is crucial in increasing awareness and compliance with antenatal visits through education, counseling, and service accessibility. A high level of involvement by health professionals reflects the availability and quality of maternal health services, including competent personnel and sufficient facilities, which motivate pregnant women to utilize antenatal care services more actively.

According to an interview with the Maternal and Child Health (MCH) coordinator at Pondok Meja Health Center, the facility employs four qualified health workers—three with an associate degree (D3) and one with a bachelor's degree (S1). Although the patient load varies daily, the staff consistently provides friendly and respectful care. Such positive interactions are emphasized as part of the health workers' commitment to quality service, which significantly impacts a mother's willingness to return for routine pregnancy check-ups.

Relationship between Age and Antenatal Care Utilization

The proportion of respondents who did not utilize antenatal care was higher among those aged 20–35 years (41 respondents) compared to those over 35 years of age (17 respondents). Specifically, respondents aged 20–24 years accounted for 57 individuals (39.3%), followed by those aged 25–29 years (45 respondents; 31%), 30–34 years (9 respondents; 6.2%), and 35–46 years (34 respondents; 23.4%). Thus, the highest utilization of antenatal care was observed among respondents aged 20–24 years. Statistical analysis yielded a p-value of 0.182 ($p > 0.050$), indicating no significant association between age and antenatal care utilization.

These findings are consistent with a study by Safari et al. (2023), which reported a p-value of 0.360 ($p > 0.050$), also indicating no statistically significant relationship between maternal age and antenatal care utilization (14). Nevertheless, antenatal care utilization is influenced not only by age but also by maternal experience, as well as other important factors such as accessibility to healthcare facilities and awareness among pregnant women. These elements play a crucial role in determining the frequency and consistency of antenatal visits.

Relationship between Parity and Antenatal Care Utilization

The proportion of respondents who did not utilize antenatal care was lower among respondents with parity three (75%) than among respondents who were not parity 55 respondents (39%), and those who utilized antenatal care but had parity were one (25%). Respondents who utilized antenatal care but did not have parity were 86 respondents (61%). Respondents with parity level > 4 people were four respondents, where one respondent utilized antenatal care and three respondents did not utilize antenatal care. Meanwhile, respondents with parity level ≤ 4 people were 141 respondents, where 86 respondents utilized antenatal care and 55 respondents did not utilize antenatal care. Based on the analysis results, there was no significant relationship between parity and utilization of antenatal services.

Regarding delivery history, 111 respondents (76.6%) gave birth via normal delivery, while 34 respondents (23.4%) underwent cesarean section. In terms of birth outcomes, there were 291 live births (90.6%), 28 miscarriages (8.7%), and two stillbirths (0.6%). Statistical analysis revealed a p-value of 0.352, indicating no significant association between parity and antenatal care utilization. These findings are consistent with the study by Aisyah et al. (2024), which also found no significant association between parity and antenatal care utilization ($p = 0.160$) (15).

Data from interviews suggest that respondents with more than two previous births often perceived antenatal care as unnecessary. This perception stems from increased self-confidence due to prior pregnancy experience and the absence of complications in earlier pregnancies. Consequently, these mothers were less motivated to attend routine antenatal visits. They typically sought care only during the early stages of pregnancy or shortly before delivery, rather than at regular intervals as recommended by health guidelines.

Relationship between Education Level and Antenatal Care Utilization

At the education level, the proportion of respondents who did not utilize antenatal care was lower among those with lower education levels (48 respondents) than among those with higher education levels (10 respondents). Statistical analysis yielded a p-value of 1.000, indicating no significant association between education level and antenatal care utilization. These findings are consistent with a study conducted by Aisyah et al. (2024), which reported a p-value of 0.145 ($p > 0.050$), also indicating no significant relationship between educational attainment and antenatal care utilization (15). However, contrasting findings were reported by Efi Rofiqoh et al. (2024), who found a significant association with a p-value of 0.029 ($p < 0.050$) (16).

Although educational level is often considered a determinant of health behavior, in this context, it did not appear to influence antenatal care utilization significantly. Nevertheless, it is worth noting that women with higher educational attainment generally possess a greater awareness of pregnancy-related health risks and are more capable of understanding health information. This may contribute to a greater motivation to attend antenatal care visits regularly, even if the association is not statistically significant in this study.

Relationship between Knowledge and Antenatal Care Utilization

The proportion of respondents who underutilized antenatal care was lower among those with good knowledge (25 respondents) compared to those with poor knowledge (33 respondents). However, statistical analysis yielded a p-value of 0.127, indicating no significant association between knowledge and the utilization of antenatal care services. This is in line with research conducted by Aisyah et al. (2024), which obtained a p-value of 0.673 (>0.050), which means that there is no significant relationship between knowledge and antenatal care utilization (15).

Interestingly, within the educational level variable, respondents with lower educational attainment were found to utilize antenatal care more frequently (72 respondents) than those with higher education levels (15 respondents). According to Arikunto (2006), individuals are considered to have good knowledge if they correctly answer at least 75% of knowledge-based questions. This aligns with the theoretical framework proposed by Arikunto, which posits a strong link between knowledge and education level (17). Therefore, the present findings support this framework, suggesting that despite the assumed connection between education and knowledge, knowledge level alone was not significantly associated with antenatal care utilization in this study.

Relationship between Family Support and Antenatal Care Utilization

The proportion of those utilizing antenatal care was lower in respondents who received less family support (27 respondents) than in respondents who received family support (60 respondents). The statistical test yielded a p-value of 0.496, suggesting that family support was not significantly associated with antenatal care utilization. Similarly, Syifa (2022) reported a p-value of 0.887 ($p > 0.050$), suggesting a lack of significant correlation between family support and antenatal care utilization (8). These results indicate that family support does not directly influence a person's decision to utilize antenatal care services, although family support is often considered an important factor in health decision-making.

Relationship between Medical History and Antenatal Care Utilization

The proportion of underutilization of antenatal care was lower in respondents with complaints/disorders during pregnancy (10 respondents) than in respondents without complaints/disorders during pregnancy (48 respondents). Based on the analysis conducted, a p-value of 0.896 was obtained, which means that there is no significant relationship between medical history and utilization of antenatal care.

According to Syifa (2022), a similar pattern was observed, with statistical analysis yielding a p-value of 0.777, thereby confirming the lack of significant correlation between health history and antenatal care utilization (8). The difference in the results of research conducted by Lila (2021) obtained a p-value of 0.000 (<0.050), meaning that there is a significant relationship between medical history and antenatal care utilization (18).

Although respondents more commonly utilized antenatal care without pregnancy-related complaints, interviews revealed that respondents with a history of illness had already been receiving medical attention through alternative healthcare pathways, such as routine visits for chronic conditions. Therefore, their engagement with healthcare services may reduce the perceived necessity for additional antenatal care visits. Furthermore, antenatal services are

designed to be universally accessible, regardless of a woman's medical background, ensuring equitable access for all pregnant individuals, irrespective of their clinical history.

Relationship between Satisfaction Level and Antenatal Care Utilization

The proportion of underutilization of antenatal care was lower in dissatisfied respondents (26 respondents) than in satisfied respondents (32 respondents). Based on the analysis conducted, a p-value of 0.070 was obtained, which means that there is no significant relationship between the level of satisfaction and antenatal care utilization. This result is in line with research conducted by Fatikah et al. (2022), which obtained a p-value of 1.750 (> 0.050), meaning that there is no significant relationship between the level of satisfaction and antenatal care utilization (19).

Although not statistically significant, satisfaction with healthcare services plays a vital role in shaping patient loyalty. High satisfaction is often linked to positive word-of-mouth, which can contribute to increased service utilization and enhance the public image and trustworthiness of healthcare facilities such as the community health center (20).

Dominant Factors Associated with Antenatal Care Utilization

Based on the results of the analysis, employment status was identified as the most dominant variable influencing antenatal care utilization. Respondents who were employed had a 3.276 times higher risk of underutilizing antenatal care services compared to unemployed respondents. This was followed by the quality of antenatal care provided by health workers, which showed a 3.017 times higher risk of underutilization among pregnant women receiving poor care. Additionally, the level of satisfaction was associated with a 1.047 times higher risk of underutilization among less satisfied respondents; however, this result was not statistically significant (p-value > 0.05).

CONCLUSION AND RECOMMENDATION

Based on the analysis in this study, a significant relationship was identified between employment status and antenatal care (ANC) utilization, with employment status emerging as the most influential factor (PR = 3.276). Moreover, ANC quality was significantly related to its utilization (PR = 3.017), underlining that better service experiences encourage pregnant women to engage more consistently with antenatal care utilization. However, no statistically significant relationship was found between ANC utilization and other variables, including age, parity, education level, knowledge, family support, medical history, and level of satisfaction.

It is recommended that health centers evaluate and enhance the quality of antenatal care services, particularly focusing on health worker behavior and clinical practices. This evaluation should aim to ensure more respectful, supportive, and patient-centered care, which may positively influence the continuity of ANC visits. Furthermore, health promotion efforts should be strengthened by providing regular counseling and education for pregnant women about the importance of consistent ANC utilization. Lastly, improving service quality and responsiveness is essential to increase maternal satisfaction, which may, in turn, encourage more frequent and complete antenatal visits.

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