
RELATIONSHIP BETWEEN THE LEVEL OF KNOWLEDGE AND ATTITUDE OF PREGNANT WOMEN AND THEIR COMPLIANCE WITH ANTENATAL CARE

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ABSTRACT

Background: The high maternal mortality rate (MMR) is primarily caused by preventable obstetric complications through routine *prenatal care* (ANC). The compliance rate among pregnant women in the Manyaran Community Health Center (Puskesmas) working area in 2024 was only 82.31%, indicating that some pregnant women remain unaware of the importance of ANC. This study aims to determine the relationship between pregnant women's knowledge and attitudes and their compliance with *Antenatal Care* at the Manyaran Community Health Center.

Methods: This study is a quantitative analytical design using a *cross-sectional* approach. The research sample consisted of pregnant women in their third trimester in the Manyaran Community Health Center working area from June to August 2025. Data collection techniques used questionnaires and maternal and child health records.

Results: The Chi-Square test showed a p-value of 0.000 (<0.05), indicating a significant relationship between knowledge and ANC compliance, and a p-value of 0.004 (<0.05), indicating a significant relationship between attitude and compliance with ANC visits.

Conclusion: This study found that a high level of knowledge and a positive attitude significantly increase pregnant women's compliance with ANC services. Therefore, health workers are expected to continue to improve their educational efforts to strengthen mothers' understanding of the importance of regular pregnancy checkups.

Keywords: attitude, antenatal care, compliance, knowledge, pregnant women

INTRODUCTION

The World Health Organization (WHO) states that the Maternal Mortality Ratio (MMR) worldwide in 2023 is 223 per 100,000 live births, and most maternal deaths are preventable (Indonesian Ministry of Health, 2023). The high maternal mortality rate is mainly due to obstetric complications such as hemorrhage, pregnancy-induced hypertension, infection, obstructed labor, and abortion, which can be detected and prevented as early as possible through regular pregnancy checkups or Antenatal Care (ANC) (Indonesian Ministry of Health, 2025).

Antenatal Care is an examination provided by professional health workers to every pregnant woman to ensure comprehensive, high-quality antenatal services, enabling pregnant women to have a positive experience during pregnancy and childbirth and to give birth to healthy, high-quality babies. (Indonesian Ministry of Health, 2025). Prenatal checkups are conducted at least once during the first trimester (0-12 weeks), twice during the second trimester (>12 weeks-24 weeks), and three times in the third trimester (>24 weeks until delivery), as well as at least two examinations by a doctor during the first visit in the first trimester and the fifth visit in the third trimester (Indonesian Ministry of Health, 2025).

Although ANC is an effective measure, compliance among pregnant women in

Indonesia remains suboptimal. Based on a 2024 report from the Central Java Provincial Health Office, the coverage of ANC visits ≥ 6 times has reached only 72%, indicating that some pregnant women still do not attend scheduled pregnancy checkups. This situation also occurs in the Manyaran Community Health Center (Puskesmas) service area, where, according to the 2024 standards.

ANC visit coverage was only 82.31%. This low figure indicates that there are still pregnant women who are not aware of the importance of ANC and are therefore reluctant to have their pregnancies checked regularly at health care facilities (Central Java Provincial Health Office, 2024).

Knowledge is the result of understanding that occurs after a person uses their senses to observe a particular object (Sasqia, 2025). Knowledge is the most important domain in the formation of a person's behavior; therefore, behavior that is based on knowledge will be more enduring compared to behavior that is not grounded in knowledge (Maharianingsih, 2025). With this in mind, the researcher was interested in studying the relationship between the level of knowledge and attitudes of pregnant women towards ANC compliance in the Manyaran Community Health Center working area in 2025.

RESEARCH METHOD

This study is a quantitative, cross-sectional analysis that aims to determine the relationship between pregnant women's knowledge and attitudes and their compliance with Antenatal Care (ANC) visits. The study was conducted in the working area of the Manyaran Community Health Center, Semarang City, in August– September 2025. The population in this study consisted of all pregnant women in their third trimester (gestational age ≥ 32 weeks) who received ANC services during June–August 2025, totaling 106 women. The sample size was calculated using the Slovin formula with a 5% margin of error, resulting in 84 respondents, plus a 10% dropout rate, for a total of 93 respondents. The sampling technique used was simple random sampling.

The research instrument was a questionnaire to measure pregnant women's knowledge and attitudes towards ANC, which was tested for validity and reliability among 30 respondents at the Lebdosari Community Health Center. The independent variables in this study were pregnant women's knowledge and attitudes. In contrast, the dependent variable was compliance with ANC visits, categorized as compliant (≥ 6 visits) or non-compliant (< 6 visits). Data collection was conducted during ANC services at the maternal and child health clinic, antenatal classes, and home visits accompanied by researchers. Before filling out the questionnaire, respondents were informed and signed an *informed consent* form. This study has obtained ethical approval from the Health Research Ethics Committee and permission from the Semarang City Health Office. Data were analyzed univariately to examine frequency distributions and bivariately using the Chi-Square test with a significance level of $p < 0.05$.

RESULTS

This section presents the research findings from statistical analyses evaluating the distributions of variables and the associations among knowledge, attitude, and compliance with Antenatal Care (ANC).

Table 1. Characteristics of Respondents Based on Age, Education, and Occupation

Characteristics	Frequency	Percentage (%)
Age		
≤ 20 years	5	5.4
20-30 years	59	63.4
31-40 years	27	29.0
≥ 40 years	2	2.2
Education		
Elementary School	3	3.2
Junior High School	2	2.2
Senior High School	77	82.8
University	11	11.8
Occupation		
Housewife	41	44.1
Civil Servant	1	1.1
Private	49	52.7
Self-employed	2	2.2
Total	93	100.0

Table 1 shows that most respondents were in the 20–35 age range, totaling 59 people (63.4%). Based on education level, the majority of respondents had a high school education, totaling 77 people (82.8%). Meanwhile, based on occupation, most respondents worked in the private sector, totaling 49 people (52.7%).

Table 2. Frequency Distribution of Respondents' Knowledge Categories

Knowledge	Frequency	Percentage (%)
Insufficient	17	18.3
Sufficient	9	9.7
Good	67	72
Total	93	100.0

Table 2 shows that most respondents fall into the Good knowledge category (67 or 72%), while the fewest fall into the Fair knowledge category, totaling 9 people (9.7%).

Table 3. Frequency Distribution of Attitude Categories

Attitude	Frequency	Percentage (%)
Negative	23	24.7
Positive	70	75.3
Total	93	100.0

Table 3 shows that most respondents (70, or 75.3%) had a positive attitude, while the fewest (23, or 24.7%) had a negative attitude.

Table 4. Frequency Distribution of ANC Compliance Categories

ANC Compliance	Frequency	Percentage (%)
Non-compliant	29	31.2
Compliant	64	68.8
Total	93	100.0

Table 4 shows that most respondents fall into the Compliant category (64, or 68.8%). The smallest number of respondents fall into the Non-compliant category, with 29 people (31.2%).

Table 5. Relationship Between Knowledge And Attitude With ANC Compliance Among Pregnant Women

	Compliant (%)	Non-compliant (%)	p-value
Knowledge			0.000
Good	56 (60.2%)	11 (11.8%)	
Fair	8 (8.6%)	1 (1.1%)	
Not enough	0 (0%)	17 (18.3%)	
Attitude			0.006
Negative	10 (43.5%)	13 (14.0%)	
Positive	54 (58.1%)	16 (17.2%)	

Table 5 shows that 60.2% of respondents had good knowledge of ANC and complied with it. The *Chi-Square* test yielded a p-value of 0.000, indicating a significant relationship between knowledge and ANC compliance. Respondents with a positive attitude and compliance numbered 54 (58.1%). The *Chi-Square* test yielded a p-value of 0.004, indicating a significant relationship between attitude and ANC compliance.

DISCUSSION

Age

Based on the results in Table 1, most respondents were in the 20–30 age range, namely 59 respondents (63.4%). The older a person is, the more mature their thinking and actions will be (Lestari, 2020). Pregnant women in early adulthood tend to be more rational in making health-related decisions, including compliance with ANC visits. This aligns with previous studies showing that the mother's age affects compliance with antenatal care (Satra Yunola, 2023). Thus, the dominance of respondents in the healthy reproductive age group in this study may be a supporting factor in the formation of compliant behavior toward ANC. This indicates that maternal age is an important factor to consider in efforts to improve the quality of pregnancy care services.

Education

The results of the study show that most respondents had a high school education, namely 77 respondents (82.8%). Causes of maternal death include direct obstetric causes such as ectopic rupture and uterine rupture, as well as indirect causes such as H1N1, myocarditis, and sepsis (Putu, 2024). A low level of education among mothers can lead to a lack of knowledge. Educated pregnant women have a better understanding of health issues, which influences their attitudes towards their own pregnancy and their nutritional needs during pregnancy (Fauziah, 2024). Therefore, the respondents' high level of education in this study contributed to their substantial knowledge and positive attitude towards ANC.

Occupation

Based on the research results, the majority of respondents work in the private sector, namely 49 respondents (52.7%). Employment can influence a person's health behavior through factors such as income, social environment, and access to information.

Pregnant women experiencing their first pregnancy interact with coworkers who are also pregnant, providing an opportunity to obtain information about pregnancy (Lathifah, 2021). Previous studies have shown that employment status is related to the use of ANC services. Previous studies have reported that pregnant women with higher levels of education, employment, and higher family incomes tend to visit ANC services more often (Sandalayuk, 2023). Education is a relatively important predisposing factor in influencing a person's behavior (Fatmawati et al., 2022).

Knowledge

The results of the study indicate that most respondents have good knowledge, namely 67 respondents (72.0%). Factors that influence pregnant women's compliance with ANC examinations include predisposing factors (age, education, occupation, parity, knowledge, attitude), reinforcing factors (support from husband and family, health workers), and supporting factors (distance from residence, family income, information media) that can influence a person's behavior, including the behavior of pregnant women in attending ANC (Sri, 2025). Previous research has found that knowledge can influence a person's decision to seek prenatal care (Abdillah, 2026). Well-informed people understand the importance of antenatal care (ANC), while those who are not well-informed do not know much about the importance of antenatal care (ANC) (Sudirman, 2026).

Attitude

Based on Table 5, most respondents (70, 75.3%) had a positive attitude toward ANC. Attitude refers to perceptions, actions, or thought patterns carried out to deal with particular objects or situations (Sartika, 2020). Attitude clearly conveys the connotation of a suitable reaction to a stimulus, which in everyday life is an emotional response to social stimuli. This study aligns with previous research on Positive Attitudes toward ANC, which shows that pregnant women accept and believe in the importance of pregnancy checkups (Sari & Umami, 2023).

ANC Compliance

The results of the study show that most respondents were compliant, namely 64 respondents (68.8%). According to Green and Kreuter (2005), in the PRECEDE-PROCEED theory, health behavior is influenced by predisposing factors (knowledge and attitude), enabling factors, and reinforcing factors. ANC compliance is one form of health behavior influenced by these three factors (Fatmawati et al., 2022).

The Relationship Between Knowledge and Compliance

Knowledge is the main predisposing factor in the formation of health behavior. Pregnant women with good knowledge will better understand the benefits of ANC, thereby encouraging them to comply with ANC. Previous research has found that knowledge can influence a person's decision to seek prenatal care (Fisca Annisa Sudirman, 2026). People with good knowledge of antenatal care (ANC) understand its importance, whereas those with poor knowledge do not fully grasp its significance (Sudirman, 2026). The results of this study using the Chi-Square test show a p-value of 0.000 (<0.05), indicating that H_a is accepted and H_o is rejected, suggesting a relationship between pregnant women's knowledge and ANC compliance.

Relationship Between Attitude And Compliance

A positive attitude makes it easier for someone to behave in accordance with their intention (Conner, 2022). In this case, pregnant women with a positive attitude towards

ANC will be more compliant in undergoing pregnancy check-ups.

This study aligns with previous research, namely that a positive attitude towards ANC indicates that pregnant women accept and believe in the importance of pregnancy check-ups. The analysis results show that there is a significant relationship between the attitudes of pregnant women and ANC compliance (Sari & Umami, 2023). The results of this study using the Chi-Square test showed a p-value of 0.004 (<0.05), which means accepting H_a and rejecting H_o , thus indicating that there is a relationship between the attitudes of pregnant women and their compliance with ANC.

CONCLUSION

Based on the results of a study on the relationship between the level of knowledge and attitudes of pregnant women and compliance with Antenatal Care (ANC) at the Manyaran Community Health Center in Semarang City in 2025 involving 93 respondents, it was found that the majority of respondents were aged 20–30 years, had a high school education, and most worked in the private sector. Most pregnant women had a good level of knowledge about ANC (67 respondents, 72%) and showed a positive attitude towards ANC (70 respondents, 75.3%). In addition, 64 respondents (68.8%) were classified as compliant with ANC visits. Statistical analysis results show a significant association between the level of knowledge and attitudes of pregnant women and ANC compliance ($p < 0.05$). However, given the cross-sectional study design, the relationship found is associative and cannot be interpreted as causal.

RECOMMENDATIONS

The government and health workers need to promote the use of the Mother and Child Health Handbook as a self-help guide for monitoring the completeness of visits and understanding the danger signs of pregnancy, involving husbands or family members in ANC visits, and strengthening social support to encourage compliance with maternal health services. Empathy-based individual counseling also needs to be strengthened for pregnant women with negative attitudes, accompanied by visit reminders through control cards or text messages as a strategy to maintain compliance. In addition, structured education programs, such as module-based classes for pregnant women that emphasize the importance of completing visits in accordance with standards, need to be established. Recording and reporting systems should also be used to identify mothers who have not met visit standards, enabling cadres to conduct follow-up or home visits.

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