

Determinants of pregnant women's knowledge about antenatal care and compliance with pregnancy check-ups at Poasia Health Center

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Abstract

Overview: This study investigates the relationship between knowledge and attitudes about Antenatal Care (ANC) and the completeness of ANC visits among pregnant women in the service area of Poasia Health Center, Kendari City. It aims to identify factors influencing adherence to the recommended ANC schedule, a crucial aspect of maternal and fetal health.

Body of Knowledge: Guided by Green and Kreuter's health behavior theory and Ajzen's theory of planned behavior, this study underscores knowledge and attitudes as key predisposing factors in shaping health behaviors. Knowledge equips individuals with the information necessary for informed decision-making, while attitudes influence the intention to act. Despite their importance, external factors such as perceived barriers, social support, and behavioral control also play a role in determining health behavior outcomes.

Methods: The study used a descriptive-analytic design with a cross-sectional approach. Fifty respondents were selected through purposive sampling. Data were collected and analyzed using the Chi-Square test to explore the relationship between the variables of knowledge, attitudes, and ANC visit completeness. This method facilitated a better understanding of how these factors interact to influence health behaviors.

Results: The results showed a significant relationship between knowledge and the completeness of ANC visits ($p = 0.012$), with respondents possessing good knowledge more likely to complete ANC visits. Conversely, no significant relationship was found between attitudes and ANC visits ($p = 0.073$), suggesting that positive attitudes alone are insufficient to ensure adherence.

Recommendation: To improve ANC adherence, interventions should include comprehensive education to enhance knowledge, strengthened family and community support systems, and the use of technology-based reminders. Health centers should conduct regular program evaluations and implement targeted strategies to address barriers, emphasizing the risks of incomplete ANC visits to ensure maternal and fetal health.

Keywords: Antenatal Care (ANC); Knowledge; Attitude; Compliance; Pregnancy Check-Ups

1. Introduction

Pregnancy is a crucial period for the health of both the mother and the baby. To ensure optimal health during pregnancy, regular and well-planned Antenatal Care (ANC) is essential. ANC involves healthcare services provided to pregnant

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women to monitor and maintain their health while detecting potential pregnancy complications early. These services include medical screening, education, and preventive interventions necessary to ensure a healthy pregnancy (1)

The World Health Organization (WHO) recommends a minimum of eight ANC visits during pregnancy to ensure optimal care for pregnant women. Reports (2) reveal that approximately 27% of pregnant women in developing countries do not meet the recommended number of ANC visits. This situation contributes to high maternal and neonatal mortality rates, with 295,000 maternal deaths occurring annually worldwide. Factors contributing to low compliance with ANC include limited knowledge, restricted access to healthcare services, economic constraints, and cultural or misguided beliefs regarding pregnancy care. Low ANC coverage exacerbates pregnancy complications that could otherwise be prevented through early detection and proper management.

In Indonesia, the maternal mortality rate (MMR) remains relatively high. According to the 2022 Indonesian Demographic and Health Survey (IDHS), the MMR was recorded at 189 per 100,000 live births. One of the main reasons for the high MMR is inadequate ANC visits. Data from the Indonesian Ministry of Health indicate that only 74% of pregnant women meet the standard of a minimum of four ANC visits during pregnancy (3). Although the government has implemented various programs, such as the Gerakan Sayang Ibu (Mother's Care Movement) and the Birth Planning and Complication Prevention Program (P4K), compliance with ANC visits still needs improvement. Key factors such as education, knowledge, and family support play significant roles in the successful implementation of these programs.

In Southeast Sulawesi Province, maternal mortality is also a concern. Data from the Provincial Health Office in 2021 showed that the MMR was 120 per 100,000 live births. Although this figure is lower than the national average, it remains significant and requires attention. Another issue is the low adherence of pregnant women to ANC schedules. Based on available data, only 65% of pregnant women in Southeast Sulawesi fulfill the minimum requirement of four ANC visits during pregnancy (4). This highlights the need for further efforts to increase optimal ANC service coverage.

As the capital of Southeast Sulawesi Province, Kendari City faces similar challenges. Data from the Kendari City Health Office in 2022 showed that only 68% of pregnant women completed ANC visits according to the standard. This means that 32% of pregnant women do not receive adequate check-ups, increasing the risk of complications during pregnancy and childbirth (5). Challenges include a lack of knowledge about the importance of ANC, limited healthcare facilities in some areas, and economic and social barriers. Therefore, a more targeted approach is needed to improve pregnant women's understanding of the importance of regular pregnancy check-ups.

This study is of great urgency given the high maternal and neonatal mortality rates and the low compliance with ANC visits, particularly in Kendari City. The knowledge factor among pregnant women is a key aspect that needs to be studied to understand how awareness of ANC's importance affects adherence to pregnancy check-ups. By identifying the determinants of pregnant women's knowledge about ANC and their compliance with pregnancy check-ups, this research aims to provide a clearer picture of the factors influencing pregnant women's behavior. The results of this study are expected to serve as a basis for more effective health education and promotion interventions.

Additionally, this research can provide recommendations for healthcare workers and policymakers to design more targeted educational programs, expand ANC service coverage, and improve the quality of healthcare services for pregnant women. Consequently, the risks of pregnancy complications and maternal mortality can be minimized, fostering a healthier future generation.

1.1. Statement of the Problem

A healthy pregnancy is a critical factor in reducing maternal and neonatal mortality rates. However, the adherence of pregnant women to Antenatal Care (ANC) visits at Poasia Health Center remains low. According to data from the Kendari City Health Office in 2022, only 68% of pregnant women completed the recommended ANC visits. This low adherence raises concerns about the risk of undetected pregnancy complications. This study focuses on determining the influence of pregnant women's knowledge about ANC on their adherence to scheduled antenatal visits. The issues explored include the extent to which pregnant women's knowledge about ANC affects their adherence to antenatal visit schedules, the factors that act as barriers or facilitators to adherence, and whether there is a significant relationship between pregnant women's knowledge levels about ANC and their compliance with antenatal visits.

1.2. Purpose of the Study

This study aims to identify the level of knowledge among pregnant women about Antenatal Care (ANC) at Poasia Health Center. Additionally, it seeks to analyze the relationship between the level of knowledge about ANC and adherence to antenatal visit schedules. The study also aims to identify the factors influencing pregnant women's adherence to ANC

visits at Poasia Health Center and to provide evidence-based recommendations for improving ANC compliance through education and health promotion.

1.3. Conceptual Framework

The study employs a conceptual framework to analyze the relationship between pregnant women's knowledge about Antenatal Care (ANC) and their adherence to scheduled antenatal visits as recommended by WHO. The independent variables in this study include pregnant women's attitudes towards ANC, encompassing their perceptions of the importance of antenatal visits, and their knowledge of ANC information, benefits, and procedures. This knowledge covers understanding when to start visits, the health benefits for both mother and fetus, and the required procedures during ANC.

The dependent variable is the adherence of pregnant women to the recommended antenatal visit schedule, which includes at least four visits during pregnancy as per WHO guidelines. The conceptual framework assumes that higher levels of knowledge about ANC and more positive attitudes toward it increase the likelihood of adherence to antenatal visit schedules. Conversely, a lack of knowledge or negative attitudes toward ANC can reduce compliance, posing risks to the health of both mother and baby.

1.4. Significance of the Study

This study holds significant value for various stakeholders. For healthcare providers, it offers insights into the importance of educating pregnant women about ANC and aids in designing more effective and evidence-based health promotion programs to enhance awareness and adherence to ANC. For the government and policymakers, the study provides data to strengthen maternal and child health policies and expand the coverage of ANC services in areas with low compliance rates. Educational programs targeting pregnant women and their families are also expected to raise awareness about the importance of regular antenatal check-ups.

For academics, the study provides additional references for future research on the determinants of pregnant women's adherence to ANC and encourages further exploration of community-based interventions to improve maternal healthcare services. For the community, this research aims to raise awareness about the importance of routine ANC visits to detect pregnancy complications early and foster proactive behavior in maintaining maternal and fetal health during pregnancy. The findings of this study are expected to increase ANC adherence rates at Poasia Health Center, ultimately contributing to reducing maternal and neonatal mortality rates.

2. Material and methods

2.1. Study Design

This study employs a quantitative research design with a cross-sectional approach. This design was chosen to analyze the relationship between pregnant women's knowledge about Antenatal Care (ANC) and their adherence to antenatal visits at a specific point in time.

2.2. Research Site

The research was conducted at Poasia Health Center, Kendari City, Southeast Sulawesi Province. This location was selected due to its significant number of pregnant women and its representation of diverse socioeconomic characteristics and access to healthcare services.

2.3. Population, Sample, and Sampling Procedure

The population in this study comprises all pregnant women who underwent antenatal check-ups at Poasia Health Center. The sample was selected using a purposive sampling technique, with inclusion criteria being pregnant women who were willing to participate in the study and had attended at least one ANC visit. The sample size used was 50 respondents, based on the minimum sample size calculation required for relevant statistical analysis.

2.4. Data Analysis

The collected data were analyzed quantitatively using the Chi-Square test to examine the relationship between pregnant women's knowledge about ANC and their adherence to ANC visits. Descriptive analysis was also conducted to describe the distribution of respondent characteristics and research variables. (6).

2.5. Ethical Considerations

This study obtained approval from the Health Research Ethics Committee. Before the research was conducted, all respondents were provided with an explanation of the study's objectives and procedures, as well as their rights to refuse or withdraw at any time without any consequences. Respondents who agreed to participate were asked to sign an informed consent form as evidence of their agreement.

3. Research Results

3.1. Univariate Analysis Results

3.1.1. Respondent Characteristics

Table 1 Distribution of Respondent Characteristics

Characteristic	Category	Frequency (n=50)	Percentage (%)
Age	< 20 years	2	4.0
	20–35 years	36	72.0
	> 35 years	12	24.0
Total		50	100.0
Education	Elementary School	8	16.0
	Junior High School	15	30.0
	Senior High School	23	46.0
	Higher Education	4	8.0
Total		50	100.0
Parity	Primigravida	10	20.0
	Multigravida	40	80.0
Total		50	100.0

Table 1 presents the distribution of demographic characteristics of the 50 respondents involved in this study. Based on age, the majority of respondents (72.0%) were in the 20–35 years age range, which represents the healthy reproductive age. Meanwhile, 24.0% were over 35 years old, and 4.0% were under 20 years old.

In terms of education, most respondents had a medium education level, with 46.0% having completed senior high school, 30.0% junior high school, 16.0% elementary school, and only 8.0% having pursued higher education.

Based on parity, the majority of respondents (80.0%) were multigravida or had experienced previous pregnancies, while the remaining 20.0% were primigravida, experiencing their first pregnancy.

3.2. Respondents' Knowledge of ANC

Table 2 Respondent Categories Based on Knowledge of ANC

Variable	Frequency (n=50)	Percentage (%)
Good Knowledge	30	60.0
Fair Knowledge	20	40.0
Total	50	100.0

The table above shows the respondent categories based on their knowledge of ANC (Antenatal Care). Among the 50 respondents involved in the study, 30 respondents (60%) had good knowledge of ANC, while 20 respondents (40%) had fair knowledge.

Table 3 Respondents' Knowledge of ANC

No.	Question	Correct Answers (Σ)	Percentage (%)
1	What is meant by antenatal care (ANC) services?	46	92%
2	Why is ANC important for pregnant women?	43	86%
3	What are the definitive signs that a woman is pregnant?	45	90%
4	Which medical professionals are authorized to perform pregnancy check-ups?	47	94%
5	Which places are not recommended for pregnancy check-ups?	48	96%
6	How many minimum ANC visits are recommended during pregnancy?	48	96%
7	When is the recommended time for the first ANC visit?	27	54%
8	How many ANC visits are recommended during the first trimester (0-3 months)?	26	52%
9	How many ANC visits are recommended during the third trimester (7-9 months)?	26	52%
10	Under what conditions should pregnant women perform ANC check-ups?	45	90%
11	How is the frequency of ANC visits that meet the standards determined?	44	88%
12	What are the risks or impacts if a pregnant woman does not undergo regular ANC check-ups?	43	86%
13	What are the characteristics of a healthy and normal pregnancy?	48	96%
14	What services are usually provided during an ANC visit?	42	84%
15	What health issues or complications may arise if a woman does not undergo ANC check-ups?	6	12%

The table above presents the respondents' knowledge of antenatal care (ANC) services. Of the 15 questions posed, most respondents demonstrated good knowledge, with the highest percentage of correct answers related to places not recommended for pregnancy check-ups and the minimum frequency of ANC visits during pregnancy (96% each).

Additionally, many respondents answered correctly on questions about the medical professionals authorized to conduct pregnancy check-ups (94%) and the characteristics of a healthy pregnancy (96%). However, there were several questions with lower percentages of correct answers, such as the recommended time for the first ANC visit (54%) and the number of ANC visits during the first and third trimesters (52% each). The question with the lowest percentage of correct answers pertained to the health issues or complications that may arise if ANC check-ups are not conducted, with only 12% of respondents answering correctly.

3.2.1. Respondents' Attitudes Toward ANC

The table above shows the categories of respondents based on their attitudes toward ANC (Antenatal Care). Among the 50 respondents, the majority, 38 respondents (76%), demonstrated a positive attitude toward ANC, while 12 respondents (24%) exhibited a moderate attitude.

Table 4 Categories of Respondents Based on Attitudes Toward ANC

Variable	Number	%
Positive Attitude	38	76.0%
Moderate Attitude	12	24.0%
Total	50	100

Table 5 Overview of Respondents' Attitudes Toward ANC

No.	Question	STS	%	TS	%	S	%	SS	%
1	Conducting ANC is very important for pregnant women	0	0.0	4	8.0	10	20.0	36	72.0
2	ANC should be conducted at least 4 times during pregnancy	0	0.0	3	6.0	14	28.0	33	66.0
3	Routine ANC visits are essential for monitoring pregnancy development	0	0.0	3	6.0	12	24.0	35	70.0
4	ANC is not necessarily conducted by healthcare professionals such as doctors or midwives	0	0.0	3	6.0	19	38.0	28	56.0
5	Following recommended ANC visits helps detect pregnancy abnormalities or complications early	0	0.0	5	10.0	30	60.0	15	30.0
6	Pregnant women only need ANC visits when experiencing complaints or nearing delivery	0	0.0	8	16.0	36	72.0	6	12.0
7	If healthcare services are far away, pregnant women do not need to undergo ANC visits	0	0.0	30	60.0	18	36.0	2	4.0
8	Pregnant women can undergo ANC at traditional birth attendants as they are capable of assisting normal deliveries	0	0.0	20	40.0	29	58.0	1	2.0
9	Scheduling an ANC appointment is considered inconvenient and impractical	0	0.0	15	30.0	30	60.0	5	10.0
10	Without pregnancy complaints, ANC visits outside the scheduled timeline are unnecessary	0	0.0	12	24.0	30	60.0	8	16.0

The table above illustrates respondents' attitudes toward ANC (Antenatal Care) based on 10 questions. Most respondents agreed that ANC is very important for pregnant women, with 72% strongly agreeing (SS) and 20% agreeing (S). Over 60% of respondents also agreed that ANC should be conducted at least four times during pregnancy and that regular visits are crucial for monitoring pregnancy development.

However, differing responses were noted for questions about the necessity of healthcare professionals for ANC, with 56% agreeing, indicating a misconception about the importance of medical professionals in ANC. Additionally, 40% of respondents believed that ANC could be performed by traditional birth attendants, and 60% stated that ANC visits are unnecessary if healthcare facilities are far. Some respondents also considered scheduling ANC appointments inconvenient (30%) and unnecessary without complaints (60%). Overall, most respondents had a supportive attitude toward ANC, but there were gaps in understanding about some aspects, such as frequency and location of visits.

3.2.2. Respondents' ANC Visits

The table below provides data on respondents' ANC visits. Among the 50 respondents, 18 (36%) completed their ANC visits as recommended, while 32 (64%) had incomplete ANC visits.

Table 6 Respondents' ANC Visits

Variable	Number	%
Complete ANC Visits	18	36.0%
Incomplete ANC Visits	32	64.0%
Total	50	100

3.3. Bivariate Analysis Results

3.3.1. Relationship Between Knowledge About ANC and ANC Visits

Table 7 Chi-Square Test Results on the Relationship Between Knowledge and ANC Visits

Knowledge Level	Complete ANC Visits		Incomplete ANC Visits		Total		P Value
	n	%	n	%	n	%	
Good	15	50	15	50	30	100	0,012
Fair	3	15	17	85	20	100	
Total	18	36	32	64	50	100	

The table above presents the results of the Chi-Square test analyzing the relationship between respondents' knowledge and ANC visits. Of the 30 respondents with good knowledge, 15 respondents (50%) completed ANC visits, while the remaining 15 respondents (50%) did not. Among the 20 respondents with fair knowledge, only 3 respondents (15%) completed ANC visits, while 17 respondents (85%) did not. In total, 18 respondents (36%) completed ANC visits, and 32 respondents (64%) did not. The Chi-Square test results indicate a p-value of 0.012, suggesting a significant relationship between respondents' knowledge and their likelihood of completing ANC visits.

3.3.2. Relationship Between Attitude About ANC and ANC Visits

Table 8 Chi-Square Test Results on the Relationship Between Attitude and ANC Visits

Attitude Level	Complete ANC Visits		Incomplete ANC Visits		Total		P Value
	n	%	n	%	n	%	
Good	14	36.8	24	63.2	38	100	0,073
Far	4	33.3	8	66.7	12	100	
Total	18	36.	32	64.	50	100	

The table above shows the Chi-Square test results analyzing the relationship between respondents' attitudes and ANC visits. Of the 38 respondents with a good attitude, 14 respondents (36.8%) completed ANC visits, while 24 respondents (63.2%) did not. Among the 12 respondents with a fair attitude, 4 respondents (33.3%) completed ANC visits, while 8 respondents (66.7%) did not. In total, 18 respondents (36%) completed ANC visits, and 32 respondents (64%) did not. The Chi-Square test results indicate a p-value of 0.073, suggesting no significant relationship between respondents' attitudes and their likelihood of completing ANC visits, as the p-value is greater than 0.05.

4. Discussion

4.1. Characteristics of Respondents

This section presents the distribution of demographic characteristics of the 50 respondents involved in the study. One of the noted characteristics is the age of the respondents. The majority, 72.0%, were in the age group of 20–35 years. This age group is considered the ideal reproductive age, where women generally have good health potential for pregnancy. This age range also reflects a life phase where many women begin or continue their pregnancies.

Additionally, 24.0% of the respondents were above 35 years old, indicating that some women in this study belonged to the older maternal age category. Pregnancy at this age is often considered higher-risk due to biological factors such as decreased egg quality and increased likelihood of medical complications. Only 4.0% of the respondents were under 20 years old, suggesting that adolescent pregnancies were relatively rare among the study participants. Teenage pregnancies are often associated with higher health risks for both the mother and the fetus.

In terms of education, there was a variety of educational levels among the respondents. Most had a secondary education level, with 46.0% having completed high school (SLTA) and 30.0% having completed junior high school (SLTP). This indicates that the majority of the study participants had access to education up to the secondary level, which could influence their understanding of health, including knowledge about ANC (Antenatal Care). Education plays a role in shaping an individual's understanding of the importance of prenatal checkups and maternal health in general.

A total of 16.0% of respondents had only completed primary education (SD), highlighting educational limitations in a small portion of participants. These limitations might affect their knowledge and attitudes toward prenatal checkups due to a lack of access to adequate health information. Only 8.0% of the respondents had a higher education level (college/university), reflecting that higher education attainment was relatively low among the study participants. Higher education levels are often associated with better understanding of health issues and greater attention to prenatal checkups (7).

Regarding parity, the majority of respondents (80.0%) were multigravida, meaning they had been pregnant before. Pregnancy among women who have prior experience, such as in the multigravida group, tends to be easier as they already have knowledge about the processes of pregnancy and childbirth. This experience can help them be better prepared for subsequent pregnancies, including conducting ANC visits. However, even though they are experienced, it is essential to continue educating multigravida women about proper prenatal care (8).

Conversely, 20.0% of respondents were primigravida, meaning they were pregnant for the first time. The first pregnancy is often a period filled with anxiety as many women lack direct experience in managing pregnancy and childbirth processes. Therefore, primigravida women require more support and information about prenatal checkups to ensure the health of both the mother and the baby. Proper knowledge and understanding of ANC are crucial for them to experience a healthy pregnancy (9).

4.2. Respondents' Knowledge of ANC

This section outlines the respondents' knowledge categories regarding antenatal care (ANC) services. The majority of respondents (60%) had good knowledge of ANC, while 40% had moderately good knowledge. This indicates that most respondents understood the importance of ANC in maintaining maternal and fetal health. Good knowledge serves as an essential indicator, as a proper understanding of ANC can encourage pregnant women to undergo regular checkups, which, in turn, can improve maternal and neonatal health during pregnancy.

In general, respondents demonstrated a high level of knowledge about various aspects of ANC. The highest percentage of correct responses was observed in questions regarding unsuitable places for antenatal checkups and the minimum frequency of ANC visits, with each reaching 96%. This level of knowledge indicates that respondents recognize the importance of selecting appropriate facilities for antenatal checkups and adhering to regular medical recommendations for checkups (10).

Moreover, questions about medical personnel authorized to perform antenatal checkups also showed excellent results, with 94% of respondents answering correctly. This demonstrates that most respondents understood that only trained medical personnel, such as doctors or midwives, are authorized to perform antenatal checkups. This understanding is critical to ensuring that pregnant women receive safe and high-quality care, which can reduce the risk of complications during pregnancy. Additionally, 96% of respondents answered correctly about the characteristics of a healthy and normal pregnancy. This knowledge reflects that many respondents understood the signs of a healthy pregnancy, which can help them recognize indicators of normal pregnancy. The ability to identify healthy pregnancy signs is crucial, as it can provide reassurance to pregnant women and motivate them to undergo routine antenatal checkups.

However, there were areas where respondents' knowledge was still lacking, such as the recommended timing for the first ANC visit (54%) and the number of ANC visits during the first and third trimesters (52% each). These figures indicate that, while most respondents understood some basic aspects of ANC, there is still a lack of understanding about the proper schedule for visits. This lack of knowledge poses risks for pregnant women who might not follow the recommended checkup schedule, potentially affecting their health and that of their fetus.

The question with the lowest percentage of correct responses was about health problems or complications that could arise if ANC checkups are not performed, with only 12% of respondents answering correctly. This finding suggests that many respondents were unaware of the risks associated with not undergoing regular ANC checkups. Knowledge of potential pregnancy complications that may go undetected without ANC is crucial to raising awareness and motivating pregnant women to adhere to routine checkups throughout their pregnancies (11).

4.3. Sikap Responden terhadap ANC

The majority of respondents had a positive attitude toward antenatal care (ANC) checkups, with 76% showing good attitudes and 24% demonstrating moderately good attitudes. These results indicate that most respondents understand the importance of ANC in maintaining maternal and fetal health during pregnancy. Positive attitudes serve as a crucial indicator that can support increased awareness of the need for routine and timely antenatal checkups, thereby minimizing the risks of pregnancy complications. However, the moderately good attitudes among some respondents highlight room for improvement in education related to ANC.

Most respondents (72%) strongly agreed that ANC checkups are essential for pregnant women, and 66% strongly agreed that checkups should be conducted at least four times during pregnancy. These attitudes reflect a general awareness among respondents about the importance of regular ANC visits to monitor pregnancy progress and detect potential complications early. However, some respondents only moderately agreed (20–28%), indicating the need for additional approaches to enhance their understanding of the significance of regular and timely ANC checkups.

Although attitudes toward ANC checkups are generally positive, some respondents held misconceptions regarding medical personnel and places for checkups. About 56% of respondents agreed that ANC does not necessarily have to be conducted by healthcare professionals such as doctors or midwives, and 40% believed that ANC could be performed by traditional birth attendants. These attitudes reveal a continuing trust in non-medical personnel who may lack the necessary skills or facilities to handle pregnancy complications. Additional education is needed to emphasize the importance of ANC conducted by professional healthcare providers to ensure optimal quality of care (12)

Another finding showed that 60% of respondents felt that if healthcare facilities are far away, ANC checkups are not mandatory. This perspective poses risks to the health of mothers and their fetuses, especially for those living in remote areas. These attitudes reflect geographical and logistical barriers that can affect access to healthcare services. Therefore, further efforts are needed to increase the availability of healthcare services in remote areas and provide education about alternative options for checkups, such as community health posts (posyandu) or village midwives.

Some respondents also felt that scheduling ANC appointments was inconvenient (30%) and believed that additional checkups beyond the schedule were unnecessary if no complaints were present (60%). These attitudes suggest that some respondents perceive ANC as a procedure needed only when visible problems arise, rather than a preventive measure. Awareness of the benefits of early detection through ANC needs to be improved, including an understanding that many pregnancy complications can occur without clear initial symptoms and require detection through routine checkups.

Overall, the findings indicate that most respondents have attitudes that support the importance of ANC, although misconceptions remain about the frequency, location, and providers of checkups. Positive attitudes are a vital asset to promote healthy behavior, but further interventions through educational programs and socialization targeting misconceptions are necessary. This way, respondents are expected not only to have positive attitudes but also to consistently follow ANC practices in accordance with recommended medical standards (13).

4.4. Respondents' ANC Visits

The results in Table 6 show that the majority of respondents (64%) did not complete ANC visits according to the recommended standards, while only 36% adhered to the complete ANC visit schedule. These findings indicate that despite Poasia Community Health Center (Puskesmas) being located in an urban area with adequate healthcare facilities, there remains a gap in compliance with the recommended ANC visit schedule. This condition highlights the need for further review of factors influencing incomplete ANC visits.

Complete ANC visits are crucial for monitoring the health conditions of the mother and the development of the fetus during pregnancy. The standard ANC service recommends a minimum of four visits throughout pregnancy, covering each trimester. However, the low compliance with complete visits in urban environments may be more influenced by work-related busyness, perceptions of good health, and a lack of understanding of the benefits of regular visits, rather than limitations in access to healthcare facilities (14)

Although respondents live in urban areas with easier access to healthcare services, factors such as education level and knowledge about ANC remain determining factors. Respondents with lower education levels may have limited understanding of the importance of regular ANC visits. Additionally, the perception of being healthy without physical complaints often leads to delays or neglect of visits, even when healthcare facilities are available near their residences.

In addition to knowledge and perception, family and spousal support play a significant role in encouraging pregnant women to adhere to ANC schedules. In urban areas, the busy schedules of spouses or a lack of awareness about the importance of accompanying pregnant women to ANC visits can be additional barriers (15). Therefore, educational approaches involving families are needed to enhance awareness and support for regular pregnancy checkups.

The presence of a community health center in urban areas like Poasia should facilitate access to healthcare services; however, these findings indicate other factors affecting compliance, such as a lack of understanding of the importance of periodic checkups or competing priorities considered more urgent. Intensive health promotion programs in workplaces or local communities can help raise awareness among pregnant women about the importance of completing ANC visits. These findings suggest that even in urban areas with better access to healthcare facilities, there remains a need to increase awareness and motivation among pregnant women to comply with recommended ANC visit schedules. More focused educational programs, support from healthcare providers, and the utilization of easily accessible media information for urban communities need to be enhanced to ensure all pregnant women undergo optimal ANC for the health of both mother and baby.

4.5. Relationship Between Knowledge of ANC and ANC Visits

The results of the Chi-Square test presented in Table 7 indicate a significant relationship between the level of knowledge about ANC and the completeness of ANC visits ($p = 0.012$). Among 30 respondents with good knowledge, 50% completed their ANC visits, whereas only 15% of respondents with moderate knowledge completed their visits. This finding suggests that better knowledge of the importance of ANC positively correlates with adherence to recommended pregnancy checkups.

This finding aligns with health behavior theory, which states that knowledge is a predisposing factor influencing health behaviors. Individuals with better knowledge tend to exhibit more positive attitudes and behaviors toward preventive measures, including adherence to ANC checkups. With a clearer understanding of the benefits of ANC, individuals are more motivated to follow the recommended schedule to maintain a healthy pregnancy (16)

This study is consistent with previous research (17), which found that pregnant women with good knowledge were 2.5 times more likely to complete ANC checkups than those with low knowledge. Additionally, a study by (18) revealed that a lack of knowledge about the importance of ANC contributes to low compliance with ANC schedules at healthcare facilities.

However, the findings also show that despite having good knowledge, 50% of respondents in this category did not complete their ANC visits. This indicates that other factors, such as attitudes, risk perceptions, time availability, family support, and comfort with healthcare facilities, can also influence compliance. Thus, good knowledge must be accompanied by motivation and external support to improve adherence to ANC schedules (19).

The researchers assume that even respondents with good knowledge may underestimate the importance of regular checkups because they feel healthy or have no complaints during pregnancy. Additionally, the ease of access in urban areas like Poasia Community Health Center might lead some respondents to feel they can delay visits without considering the risks of delayed detection of pregnancy complications.

Based on these findings, it is essential for healthcare providers not only to provide information about ANC but also to raise awareness and motivate pregnant women to apply their knowledge in practice. Educational strategies involving families and local communities can strengthen compliance with ANC checkups. Health promotion programs focusing on a practical and sustainable understanding of ANC benefits are necessary to increase the rate of complete ANC visits among pregnant women.

4.6. Relationship Between Attitudes Toward ANC and ANC Visits

The results of the Chi-Square test presented in Table 8 indicate no significant relationship between respondents' attitudes toward ANC and the completeness of ANC visits ($p = 0.073$). Of the 38 respondents with a positive attitude, only 36.8% completed their ANC visits, while 63.2% did not. Similarly, among the 12 respondents with a moderately positive attitude, 33.3% completed their visits, and 66.7% did not. These findings suggest that although most

respondents had positive attitudes toward ANC, such attitudes were not always translated into actual compliance with ANC visits.

This finding aligns with the Theory of Planned Behavior by (20), which emphasizes that intention or positive attitude alone is insufficient to drive specific actions. Other factors, such as perceived behavioral control, social support, and external barriers, play significant roles in influencing health behaviors. A positive attitude without external support and additional motivation may lead respondents to fail in translating their intentions into tangible actions.

This study is consistent with previous research by (21), which found that although most respondents had positive attitudes toward ANC, only 40% completed their ANC visits. The study highlighted that external factor such as distance to healthcare facilities, cost, and travel time also influenced pregnant women's adherence to ANC visits. However, in urban areas like the Poasia Community Health Center, where access to healthcare facilities is relatively easy, these results suggest that barriers affecting compliance are more internal. These include overconfidence in personal health, a lack of prioritization for routine checkups, and the perception that visits are only necessary if complaints arise.

The researchers assume that even respondents with positive attitudes might feel content with attending ANC visits based on their subjective needs rather than perceiving routine checkups as essential. This attitude may also be influenced by a lack of encouragement from family or partners to adhere to the prescribed checkup schedule. Based on these findings, a more comprehensive approach is required to improve compliance with ANC. In addition to strengthening education on the benefits of routine checkups, counseling programs should involve family members to provide emotional and logistical support for pregnant women. Furthermore, developing technology-based reminder systems and online consultations can help ensure that pregnant women are more disciplined in adhering to the recommended ANC schedule.

Healthcare providers are also expected to be more proactive in building supportive and trusting relationships with pregnant women, fostering a sense of trust that encourages compliance. Collaboration with local communities and community leaders can also be utilized to enhance the positive influence on pregnant women's attitudes and behaviors toward adhering to ANC schedules. These intervention measures are expected not only to reinforce existing positive attitudes but also to reshape perceptions that ANC checkups are a routine necessity. Through an integrated approach, more consistent and sustainable behavioral changes can be achieved in the future.

5. Conclusion

The results of this study show a significant relationship between the level of knowledge about ANC and the completeness of ANC visits, with a p-value of 0.012. Respondents with good knowledge tended to be more compliant in completing ANC visits compared to those with moderately good knowledge. However, no significant relationship was found between attitudes toward ANC and the completeness of ANC visits ($p = 0.073$). Although most respondents had positive attitudes, these attitudes were not always translated into tangible actions such as compliance with ANC visits.

This study highlights that good knowledge is an important factor that can motivate pregnant women to adhere to ANC schedules. However, other factors, such as risk perception, social support, and additional motivation, also influence compliance with pregnancy checkups. In the context of urban areas like the Poasia Community Health Center, easy access to healthcare facilities does not always result in high compliance rates, suggesting the need for additional interventions to increase awareness and discipline among pregnant women. Compliance with ethical standards.

Recommendations

- Healthcare providers should continue to educate pregnant women about the importance of ANC, not only through formal counseling but also through personalized approaches that strengthen individual understanding.
- Involving family and partners in ANC education programs can help enhance emotional and logistical support for pregnant women, thereby strengthening their motivation to adhere to the checkup schedule.
- Community health centers should conduct periodic evaluations of ANC programs to identify barriers and develop strategies to improve pregnant women's compliance based on the evaluation results.
- Educational programs should also emphasize the potential risks of incomplete ANC checkups to increase the perceived urgency of adhering to the recommended schedule.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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