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The Relationship Between Pregnant Women's Knowledge About Antenatal Care and Their Antenatal Visit Behavior in the Working Area Public Health Center Bekasi

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Abstract

Low levels of knowledge about Antenatal Care (ANC) among pregnant women contribute to reduced participation in antenatal visits. Adequate knowledge is expected to strongly motivate pregnant women to take care of themselves and their pregnancies by adhering to the advice provided by antenatal care providers. This, in turn, helps ensure a healthy pregnancy and the delivery of a healthy baby.

Objective: This study aims to examine the relationship between pregnant women's knowledge about ANC and their antenatal visit behavior.

Methods: This research employed a descriptive quantitative design with a cross-sectional approach. The study population consisted of 104 respondents, selected through accidental sampling. The variables analyzed included pregnant women's knowledge about ANC, their antenatal visit behavior, and family support.

Results: The highest proportion of respondents demonstrated good knowledge about ANC (95.2%). A majority also exhibited good antenatal visit behavior (78.8%), and most received moderate family support (83.7%).

Conclusion: The study findings indicate a positive relationship between pregnant women's knowledge of ANC and their antenatal visit behavior at the Karang Kitri Public Health Center in Bekasi City, with a generally favorable outcome.

Background

According to the World Health Organization (WHO), approximately 800 women die every day due to complications during pregnancy and childbirth that are largely preventable. Alarmingly, about 99% of maternal deaths occur in developing countries (WHO, 2019). In line with global efforts to reduce maternal mortality rates (MMR) and infant mortality rates (IMR), the Sustainable Development Goals (SDGs) target a reduction of the maternal mortality ratio to fewer than 70 per 100,000 live births by 2030 (United Nations, 2015).

In Indonesia, maternal mortality has shown fluctuations over time. Based on the maternal mortality data per 100,000 live births, the rate was 305 in 2015 and aimed to decrease to 183 by 2024 (Ministry of Health Republic of Indonesia, 2022). The 2022 Indonesian Health Profile also reported a decrease in the infant mortality rate, from 24 per 1,000 live births in 2017 to 22 in 2022 (Ministry of Health Republic of Indonesia, 2022).

The Indonesian government recommends that pregnant women receive antenatal care (ANC) at least four times during pregnancy—once in the first trimester, once in the second trimester, and twice in the third trimester. This goal requires both active and passive efforts to increase ANC coverage, especially among pregnant women with limited access to healthcare services (Ministry of Health Republic of Indonesia, 2021). According to national health service

coverage data in 2022, 95.41% of pregnant women attended their first ANC visit (K1), and coverage for four ANC visits (K4) increased to 87.30% (Ministry of Health Republic of Indonesia, 2022).

Antenatal care (ANC) refers to pregnancy care provided by healthcare professionals to ensure the health of both mother and fetus. Pregnancy itself is a continuous biological process beginning with ovulation, fertilization, implantation, placental development, and ending with a full-term gestation (Susilowati & Kuspriyanto, 2016). The main objective of ANC is to detect risk factors early, prevent complications, and manage existing conditions in order to safeguard the well-being of mother and child (Ministry of Health Republic of Indonesia, 2021).

Knowledge is a cognitive domain that encompasses everything stored in the human mind, shaped by both personal experience and external information (Dewi, Sucipto, & Istichomah, 2018). Several factors influence knowledge acquisition, including education level, occupation, age, access to information, socio-cultural and economic status, and the surrounding environment. Higher educational attainment typically correlates with better information reception. Likewise, older pregnant women tend to better understand the importance of ANC (Prasetyaningsih, 2020). Moreover, access to media and technology enhances short-term knowledge gain, while social and economic conditions can either support or hinder the acquisition and application of health knowledge.

Method

This study employed a descriptive quantitative research design to examine the relationship between pregnant women's knowledge of Antenatal Care (ANC) and their behavior regarding pregnancy check-up visits. The research was conducted in July 2022 at the Karang Kitri Community Health Center (Puskesmas Karang Kitri) located in Bekasi City, Indonesia. The study population consisted of third-trimester pregnant women who resided in the working area of the health center, totaling 420 individuals.

The sample size was determined using Slovin’s formula with a 10% margin of error. The resulting sample size was rounded up to 81 respondents. The sampling technique used was accidental sampling, in which respondents were selected based on their availability and willingness to participate when encountered by the researcher, as long as they met the established inclusion criteria. The inclusion criteria for this study were as follows: pregnant women in their third trimester, residing within the working area of Puskesmas Karang Kitri, and providing informed consent to participate. Pregnant women who were currently experiencing or had a history of pregnancy complications were excluded from the study.

Data were collected using a self-administered questionnaire distributed directly to the respondents. The instruments used in this study consisted of three validated questionnaires: a knowledge questionnaire on ANC, a behavioral questionnaire regarding ANC visits, and a family support questionnaire. These instruments had been previously tested in a pilot study conducted in 2022 involving 30 respondents from the Puskesmas Kaliabang Tengah area in Bekasi City. Each instrument included structured items that had been used in earlier research and demonstrated adequate reliability.

Statistical Data Analysis

Data obtained from the questionnaires were analyzed using descriptive and inferential statistics. Descriptive statistics were used to summarize the demographic characteristics of the respondents, levels of knowledge, ANC visit behavior, and family support. These were presented in terms of frequencies and percentages. To examine the relationship between pregnant women's knowledge of ANC and their behavior in attending pregnancy check-ups, **Chi-Square (χ^2) test** was employed. This non-parametric test is suitable for analyzing categorical data to determine the presence of a statistically significant association between two variables. The level of significance used in this study was set at $\mathbf{p < 0.05}$. Statistical analysis was performed using SPSS (Statistical Package for the Social Sciences) version 25.

Results

Univariate Analysis

Table 1. Demographic Characteristics of Respondents at Karang Kitri Public Health Center, 2022 (n = 81)

Demographic Characteristics	Frequency (f)	Percentage (%)
Age		
High-Risk Reproductive Age (<20 and >35 years)	10	12.2
Reproductive Age (20–35 years)	72	87.8
Parity		
Primigravida	32	39.0
Multigravida	32	39.0
Grand Multigravida	18	22.0
Occupation		
Teacher	1	1.0
Agricultural Laborer	1	1.0
Private Employee	23	22.1
Housewife	58	70.7
Income		
High	44	53.7
Low	38	46.3
Education		
Elementary School	5	6.1
Junior High School	5	6.1
Senior High School	64	78.0
Higher Education	8	9.8
Total	**81**	**100.0**

The study included 81 third-trimester pregnant women at Karang Kitri Health Center, Bekasi. The majority were of reproductive age (20–35 years; 87.8%, n=72), with a smaller proportion in high-risk age groups (<20 or >35 years; 12.2%, n=10). Parity distribution was nearly equal

between primigravida (39.0%, n=32) and multigravida (39.0%, n=32), while grande multigravida accounted for 22.0% (n=18). Most respondents were housewives (70.7%, n=58), and 53.7% (n=44) had a high household income. Education levels were predominantly high school (78.0%, n=64), followed by tertiary education (9.8%, n=8).

Table 2. Frequency Distribution of Respondents Based on Family Support at Karang Kitri Public Health Center

Category of Family Support	Frequency (f)	Percentage (%)
Poor	8	9.9
Moderate	25	30.9
Good	48	59.3
Total	**81**	**100**

Family support was categorized as "adequate" for most respondents (81.7%, n=67), while 15.9% (n=13) received "good" support, and only 2.4% (n=2) reported "poor" support. This suggests that while family involvement is generally present, targeted interventions may be needed for the minority lacking strong support.

Table 3. Frequency Distribution of Respondents Based on Antenatal Care (ANC) Visit Behavior at Karang Kitri Public Health Center

ANC Visit Behavior Category	Frequency (f)	Percentage (%)
Poor	10	12.3
Moderate	17	21.0
Good	54	66.7
Total	**81**	**100**

Nearly all respondents (95.1%, n=78) demonstrated **good knowledge** of antenatal care (ANC), with only 4.9% (n=4) scoring poorly. This indicates high awareness of ANC's importance, likely influenced by the sample's education level (78% high school graduates) and access to health information.

Table 4. Frequency Distribution of Respondents Based on Pregnant Women's Knowledge of ANC at Karang Kitri Public Health Center

Knowledge Level	Frequency (f)	Percentage (%)
Poor	4	4.9
Moderate	12	14.8
Good	65	80.3
Total	**81**	**100**

Despite high knowledge, 76.8% (n=63) exhibited good ANC visit behavior, while 23.2% (n=19) had poor compliance. This gap suggests that knowledge alone does not guarantee

adherence, possibly due to barriers like time constraints, financial limitations, or perceived low risk among healthy pregnancies.

Bivariate Analysis

Table 5
Association Between Knowledge of ANC and Antenatal Care Visit Behavior Among Pregnant Women at Karang Kitri Health Center, Bekasi

Knowledge of ANC	Good Visit Behavior	Poor Visit Behavior	Total	OR (95% CI)	p-value
Good	63	15	78	14.4 (1.132–119.355)	0.007*
Poor	0	4	4		
Total	63	19	81		

A significant relationship was found between ANC knowledge and visit behavior (*p*=0.007). Women with good knowledge were 14.4 times more likely to attend ANC visits regularly (OR=14.4; 95% CI: 1.132–119.355). However, the wide confidence interval (due to only 4 respondents with "poor knowledge") warrants cautious interpretation. All respondents with poor knowledge (*n*=4) exhibited poor visit behavior, reinforcing the role of education in promoting ANC utilization.

Discussion

This study found a significant association between pregnant women's knowledge of ANC and their antenatal care visit behavior at Karang Kitri Health Center, Bekasi. The majority of respondents (95.1%) had good ANC knowledge, yet only 76.8% demonstrated good visit compliance. This discrepancy aligns with research by Titaley et al. (2020), who noted that while health education improves knowledge, structural barriers such as distance, cost, and time constraints often hinder ANC attendance in Indonesia. The high knowledge level in this study may reflect effective local health promotion programs, but the persistence of non-compliance suggests that knowledge alone is insufficient to ensure optimal ANC utilization.

The strong correlation (p=0.007) between knowledge and ANC behavior supports the Health Belief Model (Hochbaum et al., 1952), which posits that health-related actions depend on perceived benefits and barriers. Women with good ANC knowledge likely recognize the benefits of regular check-ups, increasing their likelihood of attendance. However, the 23.2% with poor compliance despite adequate knowledge may perceive logistical or financial barriers as outweighing benefits, as observed in a similar study by Sarker et al. (2021) in low-resource settings. This highlights the need for interventions addressing both education and accessibility.

The predominance of good ANC knowledge contrasts with findings by Fagbamigbe et al. (2019) in Nigeria, where only 58% of pregnant women demonstrated adequate ANC knowledge. This difference may stem from variations in health education infrastructure; Bekasi's urban setting likely provides better access to information than rural Nigeria. Additionally, the high education level in this sample (78% high school graduates) supports the link between education and health literacy, consistent with Andersen's Behavioral Model (Andersen, 1995), which emphasizes enabling factors like education in healthcare utilization.

Family support in this study was mostly "adequate" (81.7%), but its limited association with ANC behavior differs from studies emphasizing familial influence (Sharma et al., 2020). This may reflect cultural shifts in urban Indonesia, where individual autonomy in healthcare decisions is increasing. Alternatively, the measurement tool may not have captured nuanced support forms (e.g., emotional or financial). Future research should use validated scales to explore this further.

The demographic profile 87.8% reproductive-age women and 53.7% high-income households mirrors global trends linking socioeconomic status to ANC access (WHO, 2021). However, the 12.2% in high-risk age groups (<20 or >35 years) had similar ANC behavior to younger women, unlike studies showing poorer compliance among adolescents (Gyaltshen et al., 2021). This could indicate targeted outreach effectiveness for high-risk groups in Bekasi.

The Odds Ratio (OR=14.4) suggests knowledge dramatically improves ANC attendance, but the wide CI (1.132–119.355) limits certainty due to few "poor knowledge" cases (n =4). Similar results were reported by Bintabara et al. (2018) in Tanzania, where small subgroups led to unstable effect estimates. Larger studies are needed to validate this relationship.

The gap between knowledge and behavior calls for mixed interventions. As proposed by Kabir et al. (2022), combining education with mobile health reminders and community-based support could bridge this gap. Indonesia's *Buku Kesehatan Ibu dan Anak* (Maternal Health Booklet) program, which tracks ANC visits, could be strengthened by integrating these strategies.

Conclusion

This study confirms a significant positive relationship between pregnant women's knowledge of ANC and their antenatal care visit behavior at Karang Kitri Health Center, Bekasi (p=0.007), with women possessing good ANC knowledge being 14.4 times more likely to attend regular check-ups. However, despite 95.1% of respondents demonstrating good ANC knowledge, only 76.8% exhibited optimal visit behavior, indicating that knowledge alone is insufficient without addressing structural barriers like accessibility and financial constraints. The findings suggest that while health education remains crucial, complementary interventions such as improving service accessibility and implementing reminder systems are needed to bridge the gap between knowledge and practice, particularly in urban Indonesian settings where individual autonomy in healthcare decisions appears to be increasing. Future research should explore these dynamics in more diverse populations to strengthen the generalizability of these findings.

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