

Relationship Between Pregnant Women's Knowledge of Danger Signs in Pregnancy and Antenatal Care Compliance at Labuha Public Health Center, South Halmahera District, North Maluku

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Abstract, Background: Maternal mortality in Indonesia continues to increase, partly due to complications not detected early. Compliance with Antenatal Care (ANC) is crucial for detecting pregnancy danger signs, but this is often influenced by the mother's level of knowledge. Objective: This study aimed to analyze the relationship between pregnant women's knowledge of pregnancy danger signs and ANC visit compliance at Labuha Public Health Center, South Halmahera District. Methods: This study employed a quantitative correlational research design with a cross-sectional approach. The sample consisted of 40 respondents selected from Labuha Public Health Center using a questionnaire instrument. Data analysis was performed using the Chi-Square test. Results: The majority of respondents had good knowledge (67.5%) and were compliant with ANC visits (80.0%). Statistical test results showed a p-value of 0.001 ($p < 0.05$), indicating a significant relationship between knowledge and compliance. Conclusion: There is a significant relationship between pregnant women's knowledge of pregnancy danger signs and ANC visit compliance at Labuha Public Health Center.

Keywords: Antenatal Care Compliance, Knowledge, Labuha Public Health Center, Pregnancy Danger Signs, South Halmahera District.

1. INTRODUCTION

Pregnancy is a profoundly meaningful experience for women. Regular examination and monitoring of pregnant women are essential. This aims to optimally prepare the mother and child's physical and mental health during pregnancy, childbirth, and the postpartum period to achieve healthy mothers and children. Additionally, it aims for the early detection of pregnancy danger signs, abnormalities, complications, and diseases commonly experienced by pregnant women so that these can be prevented or treated (Sari, 2025).

According to the World Health Organization (WHO), in 2021, the global Maternal Mortality Ratio (MMR) was 295,000 deaths, with the leading causes being high blood pressure during pregnancy (pre-eclampsia and eclampsia) and hemorrhage. Based on the Indonesian Ministry of Health (2021), in 2021, Indonesia recorded 7,389 maternal deaths. This number shows an increase compared to 2020, which was 4,627 deaths. Meanwhile, the Infant Mortality Rate (IMR) in Indonesia was 16.9 per 1,000 live births. This figure decreased by 1.74% compared to the previous year, which was 17.2 per 1,000 live births. The number of maternal deaths in South Halmahera District in 2022 was 141 per 100,000 live births.

Efforts by the Indonesian Ministry of Health to minimize the MMR have been implemented, including optimizing ANC services. However, problems persist, including suboptimal ANC service implementation, insufficient numbers of competent health workers, and the need to optimize long-term contraception programs (Care et al., 2016).

Antenatal Care (ANC) is pregnancy examination aimed at optimizing the mental and physical health of pregnant women so they are able to face childbirth, the postpartum period, prepare for breastfeeding, and achieve normal reproductive health recovery. Its objectives are to recognize and manage as early as possible any complications that may arise during pregnancy, childbirth, and the postpartum period, to recognize and manage diseases accompanying pregnancy, childbirth, and the postpartum period, and to reduce maternal and perinatal morbidity and mortality (Pengetahuan et al., 2018).

In implementing antenatal care, pregnant women are more likely to comply if they receive family support. In this regard, support from husbands, family, and the community significantly influences the success of ANC. One cause of non-compliance among pregnant women during antenatal check-ups is lack of knowledge, positive maternal behavior towards antenatal examination, and insufficient family support (Kepatuhan & Antenatal, 2024).

Irregular or non-attendance of antenatal care during pregnancy will impact the health of both the mother and the fetus. Pregnant women may not be aware of developments or complications occurring during pregnancy, some of which are preventable. Mothers who arrive at health facilities in critical condition will receive delayed assistance, potentially leading to death (Kurniasih, 2020).

2. RESEARCH METHOD

The type of research used was quantitative correlation with a cross-sectional approach. The sample in this study consisted of 40 respondents. Data collection was carried out using a questionnaire, followed by Chi-Square analysis.

3. RESEARCH RESULTS

Table 1 Frequency Distribution of Respondent Characteristics.

Respondent Characteristics	Frekuensi	Persentase (%)
Age		
< 20 years	2	5.0

20 - 35 years	33	82.5
> 35 years	5	12.5
Total	40	100
Education		
Elementary School	1	2.5
Junior High School	16	40.0
Senior High School	20	50.0
Higher Education	3	7.5
Total	40	100.0
Occupation		
Homemaker	27	67.5
Private Sector Employee	4	10.0
Farmer	6	15.0
Civil Servant	3	7.5
Total	40	100.0

Based on Table 1, it can be seen that the majority of respondents were aged 20-35 years, with 33 respondents (82.5%). Regarding education level, the majority had a senior high school education, with 20 respondents (50.0%). Based on occupation, the majority of respondents worked as homemakers, with 27 respondents (67.5%).

Table 2 Frequency Distribution of Pregnant Women's Knowledge Level Regarding Pregnancy Danger Signs.

Knowledge Level	Persentase (%)	
	Frekuensi	
Good	27	67.5
Fair	7	17.5
Poor	6	15.0
Total	40	100.0

Based on Table 2, it can be concluded that respondents with good knowledge about pregnancy danger signs numbered 27 respondents (67.5%).

Table 3 Frequency Distribution of ANC Visit Compliance.

ANC Compliance	Frekuensi	Persentase (%)
Compliant	32	80.0
Non-Compliant	8	20.0
Total	40	100.0

Based on Table 3, out of 40 respondents, most were compliant with ANC visits, totaling 32 individuals (80.0%), while those who were non-compliant totaled 8 individuals (20.0%).

Table 4 Relationship Between Pregnant Women's Knowledge of Pregnancy Danger Signs and ANC Compliance.

Knowledge	ANC Compliance						P-value
	Compliant		Non-Compliant		Total		
	n	%	n	%	n	%	
Good	26	65	1	2,5	26	67,5	0,001
Fair	4	10	3	7,5	7	17,5	
Poor	2	5	4	10	7	15	
Total	32	80	8	20	40	100	

Based on Table 4, it can be seen that out of 40 respondents, 26 (65%) had good knowledge and were compliant with ANC, while 1 (2.5%) with good knowledge was non-compliant. Those with fair knowledge and who were compliant numbered 4 respondents (10%), while those who were non-compliant numbered 3 respondents (7.5%). Meanwhile, those with poor knowledge and who were compliant numbered 2 respondents (5%), while those who were non-compliant numbered 4 respondents (10%).

DISCUSSION

The results of the frequency distribution of maternal age show that the majority of respondents in this study were aged 20-35 years, with 33 respondents (82.5%). Maternal age significantly influences pregnancy; women aged 20-35 tend to be more regular in check-ups due to the paradigm that examinations are very important. In contrast, those over 35 tend to be indifferent to antenatal visits, as they already possess mature pregnancy experience (Care et al., 2016). However, other research indicates no relationship between

maternal age and ANC visit compliance among pregnant women.

The results of the frequency distribution of education show that the majority of respondents had a senior high school education, with 20 respondents (50.0%). Their education is related to their ability to absorb information. With a high level of knowledge, pregnant women can better absorb information conveyed to them, whether through counseling or other sources, which can change their actions or behavior in carrying out pregnancy examinations. Education is necessary to obtain information, for instance, on matters that support health, thereby improving quality of life and self-actualization. Therefore, the higher a person's education, the easier it is for them to receive given information, the more knowledge they possess, and the better their performance. Individuals with lower education levels may hinder the development of their attitudes towards accepting new information and values (Publikasi, 2017).

The results of the frequency distribution of occupation show that the majority of respondents worked as homemakers, totaling 27 respondents (67.5%). Occupation influences how mothers acquire information. Unemployed mothers have more time to participate in activities organized by integrated health posts (Posyandu). Ample opportunity to obtain information influences sufficient knowledge of pregnancy danger signs.

Relationship Between Knowledge of Pregnancy Danger Signs and ANC Compliance

The results of the frequency distribution analysis of respondents' knowledge about pregnancy danger signs show that respondents with good knowledge numbered 27 (67.5%), those with fair knowledge numbered 7 (17.5%), and those with poor knowledge numbered 6 (15.0%). The research results indicate that the majority of respondents had high knowledge of pregnancy danger signs. This knowledge includes first-trimester danger signs such as vaginal bleeding, excessive nausea and vomiting (hyperemesis gravidarum), and severe abdominal pain; second-trimester danger signs such as facial/hand swelling and severe headache; and third-trimester danger signs such as decreased fetal movement, bleeding, and premature rupture of membranes.

which showed that a person's knowledge about pregnancy examination influences the attitude of pregnant women. The higher the mother's knowledge, the more frequently she will attend ANC visits. The higher the mother's knowledge level, the higher the coverage of antenatal care services. Pregnant women with good knowledge will consider their stance in undertaking Antenatal Care. This can be interpreted that the better the mother's knowledge about pregnancy danger signs, the higher her motivation to undergo antenatal care. In the study involving pregnant women in the first, second, and third trimesters (52 pregnant

women), characteristics included education level, age, medical history, and occupation.

Compliance of Pregnant Women in Undergoing ANC

Based on visit data, the frequency distribution of respondents regarding compliance in antenatal care visits shows that compliant respondents numbered 32 (80.0%), while non-compliant respondents numbered 8 (20.0%). The majority of respondents in this study had high compliance in conducting ANC visits according to the minimal standard set by the Ministry of Health (6 times during pregnancy: 2 times in the first trimester, 2 times in the second trimester, and 2 times in the third trimester). This finding aligns with research by (Kolantunga et al., 2021) . which states that pregnant women who receive family support have a greater chance of attending ANC regularly.

The regularity of antenatal care (ANC) examinations is an important factor in ensuring the health of pregnant women and the fetus. The research results show that more than half of the respondents were regular in conducting ANC examinations. This regularity is influenced by various factors, including easy access to health facilities, such as proximity to the Watopute Public Health Center. Regular ANC examinations provide significant benefits, including early detection of pregnancy and childbirth risks and reducing maternal and infant mortality rates. With regular ANC visits, potential problems during pregnancy can be identified earlier and managed before seriously affecting the mother or fetus (Pengetahuan et al., 2024).

The researcher argues that proper Antenatal Care (ANC) examination according to the rules is important for pregnant women to maintain maternal and fetal health, ensuring safe childbirth. The researcher found that most respondents were aware of the importance of Antenatal Care (ANC) examinations for the health and safety of mother and fetus by conducting ANC examination visits according to established rules/standards.

Relationship Between Pregnant Women's Knowledge of Pregnancy Danger Signs and ANC Compliance

Knowledge is an indicator of a person's actions. When a person is grounded in good health knowledge, they will understand the importance of maintaining health and motivate themselves to apply it in their lives. Knowledge is needed as support in fostering self-confidence, attitudes, and daily behavior. Knowledge is the primary factor that supports a person's actions (Safitri et al., 2025).

In this study, it can be seen that out of 40 respondents, 26 (65%) had good knowledge and were compliant with ANC, while 1 (2.5%) was non-compliant. Those with fair knowledge and who were compliant numbered 4 (10%), and those who were non-compliant numbered 3 (7.5%). Meanwhile, those with poor knowledge and who were compliant numbered 2 (5%),

and those who were non-compliant numbered 4 (10%). The statistical Chi-Square test results showed a p-value of 0.001, where $p < \alpha$ (0.05). Therefore, it can be concluded that there is a Relationship Between Pregnant Women's Knowledge of Pregnancy Danger Signs and ANC Compliance at Labuha Public Health Center, South Halmahera District, North Maluku.

The theory explained in Notoatmodjo (2017) states that knowledge is one of the factors that change behavior, specifically within predisposing factors. Good knowledge or mindset will determine good actions. Health behavior theory also explains that people who know more and have experienced something will act better than those who do not know and have not experienced it. Several factors also support a person's behavior: 1) predisposing factors (knowledge, attitudes, beliefs, perceptions), 2) enabling factors (access to health services, skills, and availability of references), 3) reinforcing factors manifested in the form of family, neighbor, and community leader support (Lilis Nugrawati, Harismayanti, 2023).

Previous research conducted by (Kolantunga et al., 2021) stated that it is very important for pregnant women to have knowledge of pregnancy danger signs to prevent problems during pregnancy. A good level of knowledge among pregnant women regarding pregnancy dangers can motivate themselves and improve compliance in undergoing ANC, which influences the quality of life for both mother and child. Antenatal Care can detect danger signs during pregnancy to reduce occurring risk factors.

Research conducted by (Oktavia, 2018) also showed results indicating a relationship between pregnant women's knowledge of pregnancy danger signs and antenatal care (ANC) examination visits, with a p-value of 0.001. The respondents' level of knowledge about antenatal care was obtained from pregnancy experience, education level, environment, etc. Pregnancy experience can be gained from the respondent's own pregnancy or information from others' experiences.

The researcher argues that pregnant women's knowledge of pregnancy danger signs significantly influences their regularity in attending pregnancy check-ups. This needs attention because pregnant women who undergo pregnancy examinations not according to the rules will receive less information about pregnancy danger signs, thus being unable to detect pregnancy dangers early. Conversely, if pregnant women undergo pregnancy examinations according to the rules, they will have more knowledge about pregnancy danger signs and be better able to detect pregnancy dangers early, which can affect both mother and fetus.

4. CONCLUSION

Based on the research results and data analysis, the following conclusions can be drawn:

1. Knowledge Level: Most pregnant women at Labuha Public Health Center have good knowledge regarding pregnancy danger signs, covering risks in the first, second, and third trimesters.
2. Compliance Level: The majority of respondents (80%) were compliant in conducting ANC visits according to the minimal standard of 6 times during pregnancy set by the Ministry of Health.
3. Relationship Between Variables: There is a significant relationship between the level of maternal knowledge regarding pregnancy danger signs and their compliance in undergoing ANC examinations. Mothers with better knowledge tend to be more motivated to have their pregnancies checked regularly.
4. Supporting Factors: Knowledge is the primary predisposing factor shaping health behavior; mothers who understand pregnancy dangers will be more vigilant and proactive in early risk detection through health services.
5. Impact of Compliance: The regularity of ANC visits based on good knowledge directly contributes to reducing maternal and infant morbidity and mortality through early detection of complications.

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