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The Influence of Husbands' Knowledge, Attitudes, and Support on Wives' Antenatal Care Visits

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ABSTRACT

Introduction: Antenatal Care (ANC) coverage reflects access to healthcare during pregnancy. Husbands play a crucial role in encouraging ANC attendance through their knowledge, attitude, and support. This study aimed to analyze the relationship between husbands' knowledge, attitudes, and support and the frequency of their wives' ANC visits in Wakai Village, Indonesia..

Methods: This analytical cross-sectional study included 40 husbands whose wives were pregnant in the second or third trimester or had delivered within the past month. Total sampling was performed. Data on husbands' sociodemographic characteristics, knowledge, attitudes, and support toward ANC were collected using structured interviewer-administered questionnaires, while the frequency of ANC visits was verified using the Maternal and Child Health Handbook (KIA). Data were analyzed using the chi-square test and multivariable logistic regression using STATA 15.1.

Results: Overall, 47.5% of wives had completed four or more ANC visits. Husbands with good knowledge and positive attitudes tended to have wives with more frequent ANC visits; however, these associations were not statistically significant in the multivariate analysis. In contrast, husbands' support showed a strong and significant association with ANC utilization. Wives whose husbands provided support were 4.9 times more likely to complete at least four ANC visits than those whose husbands did not provide support (AOR = 4.9; 95% CI: 1.0–35.0; $p < 0.05$).

Conclusion: Husbands' support was the strongest determinant of regular ANC attendance among pregnant women in this rural setting, whereas knowledge and attitudes alone were not consistently associated with visit frequency. Interventions to improve maternal health in similar contexts should prioritize strengthening husbands' practical support along with educational efforts.

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INTRODUCTION

The maternal, neonatal, and child mortality rates remain high in developing countries, including Indonesia. Antenatal care (ANC) coverage serves as a primary indicator of access to and utilization of healthcare services during pregnancy. The World Health Organization (WHO) recommends Antenatal Care (ANC) and at least eight ANC visits beginning in the first trimester to ensure a positive pregnancy experience and reduce maternal mortality (1–4).

In 2016, global maternal mortality reached 289,000 deaths, equating to approximately 791 deaths per day. Among ASEAN countries, Indonesia recorded the highest maternal mortality rate at 214 per 100,000 live births, surpassing neighboring countries, such as the Philippines (170), Vietnam (160), and Thailand (44) (5). Although the maternal mortality in Indonesia declined between 1991 and 2015, the number of deaths remained significant. Central Sulawesi, for instance, has increased from 81 maternal deaths in 2020 to 109 in 2021 (6,7). In the Tojo Una-una Regency, the coverage of first ANC visits (K1) decreased from 94.7% in 2021 to 88.55% in 2022, and complete ANC visits (K4) only reached 43.7% (8).

Regular Antenatal Care visits and consistent monitoring by midwives or doctors during pregnancy are essential for the early recognition of potential complications, including general medical histories. This proactive approach could reduce the risk of maternal mortality. Factors influencing the attainment of initial and comprehensive antenatal care visits include internal factors such as parity and age, while external factors include knowledge, attitudes, economic status, social and cultural aspects, geographical factors, access to information, and support. (9,10). The high coverage of early and complete antenatal visits was significantly supported by husbands. Husband support can be translated as attitude or assistance demonstrated through positive cooperation, active involvement in household chores, childcare, and providing emotional support to wives. Husband support during pregnancy includes activities such as taking leisurely walks with the wife, accompanying her to prenatal check-ups, and maintaining open and supportive communication (11–13).

However, existing research indicates that many Indonesian husbands, particularly those in rural and island communities, demonstrate limited knowledge and low participation in ANC activities (14–17). Most studies on male involvement have concentrated on urban or semi-urban areas, focusing on general attitudes rather than concrete behaviors that influence ANC attendance. Empirical data on how husbands' knowledge, attitudes, and support directly affect wives' ANC visits in remote settings are scarce.

A preliminary survey in Wakai Village, a rural coastal area in the Tojo Una-una Regency, revealed that most pregnant women attended ANC visits without being accompanied by their husbands. Midwives reported that husbands often lacked awareness of ANC importance, contributing to irregular ANC attendance. Therefore, this study was conducted to analyze the relationship between husbands' knowledge, attitudes, and support for wives' ANC visits in a rural Indonesian context. By focusing on a geographically isolated village, this study aimed to fill the empirical gap in understanding male involvement in maternal health in rural settings in Indonesia.

METHOD

Research Type

This study employed an analytical cross-sectional design to examine the relationship between husbands' knowledge, attitudes, and support and the frequency of their wives' ANC visits. A cross-sectional approach was selected because it enables the simultaneous measurement of exposure (husband-related factors) and outcome (ANC visits) in a community-based setting with limited accessibility. Although this design does not establish temporal causality, it is suitable for the early identification of associated factors and informing future longitudinal research in rural areas with constrained resources.

Population and Sample

The population of this study consisted of husbands residing in Wakai Village whose wives were pregnant in the second or third trimester or had delivered within the past month.

Owing to the small number of eligible husbands in the village, the study used a total sampling technique to include all individuals who met the inclusion criteria. Forty husbands participated in the study. Husbands were eligible if they lived in the same household as their wives, possessed a KIA book for the verification of ANC visits, and were able to communicate effectively. Husbands were excluded if they were unable to communicate due to illness or

cognitive limitations, had resided in the village for less than six months, or had incomplete questionnaire responses. These criteria were applied to enhance the validity and accuracy of our findings.

Research Location

The study was conducted in Wakai Village, Tojo Una-una District.

Data Collection Procedures

Data were collected through structured interviewer-administered questionnaires completed exclusively by the husbands. The questionnaire included items on sociodemographic characteristics, knowledge of ANC, attitudes toward ANC, and types of support husbands provided during their wives' pregnancies. Information regarding the number and timing of ANC visits was not collected directly from wives through interviews. Instead, the researcher verified the frequency of ANC visits by examining entries in the Maternal and Child Health Handbook (KIA).

The research variables encompassed age groups (<20 years; 20-35 years; and >35 years), educational level (elementary, junior high school, high school, and college), and parity (nullipara, primipara, multipara, and grandemultipara), which were collected through a questionnaire focusing on respondent characteristics. Knowledge was categorized as good (76-100% correct responses) or sufficient (≤75% correct responses). Attitude is considered positive if it is at or above the median value, whereas it is considered negative if it is below the median value. Husband support is classified as supportive if it is at or above the median value, and unsupportive if it is below the median value. Antenatal care visits were categorized as regular if they adhered to the recommended schedule, and irregular if they did not meet the standard.

Data Analysis

Data analysis was conducted using STATA version 15.1. The analysis began with cleaning the data to ensure accuracy and completeness. Descriptive statistics were used to present the respondent characteristics and the distribution of the study variables. Normality testing was performed using the Shapiro–Wilk test to determine the appropriate cut-off values for continuous variables. Bivariate analysis using the chi-square test was employed to examine associations between husbands' knowledge, attitudes, support, and ANC visit frequency. Variables with significant associations were included in the multivariate logistic regression analysis to identify independent predictors of completing at least four ANC visits. Results are presented as adjusted odds ratios with 95 percent confidence intervals, and statistical significance was determined at a p-value of less than 0.05.

Ethical Approval

This study was approved by the Health Research Ethics Committee of Poltekkes Kemenkes Palu (Approval Number: 123/KEPK/2024). All participants, including parents or guardians of participants under 18 years of age, provided informed consent prior to participating in the study. Confidentiality of all participants was maintained throughout the study.

RESULTS

Table 1 shows a breakdown of the demographic and behavioral variables within a sample of 40 respondents. The majority of respondents fell within the age range of 20-35 years (85.0%), with a considerable proportion having senior high school education (35.0%) and working as farmers (42.5%). In terms of parity, the sample had a higher prevalence of multiparous women (42.5%). Wealth status was distributed more evenly across categories, with the most significant proportion falling within the middle-wealth bracket (27.5%). Regarding attitudes towards Antenatal Care (ANC) visits, the majority of respondents demonstrated negative attitudes (55.0%). Husband support for ANC was noted among the majority (47.5%) of the respondents, while the frequency of ANC visits appeared to be predominantly irregular (67.5%).

Table 1. Distribution of Research Variable Categories (n=40).

Variables	Categories	n	%
Age of Wife (years old)	< 20	3	7.5
	20-35	34	85.0
	>35	3	7.5
Education	Elementary school	11	27.5
	Junior high school	7	17.5
	Senior high school	14	35.0
	College	8	20.0
Occupation	Civil servant/honorary	5	12.5
	Self-employed	9	22.5
	Fisherman	4	10.0
	Farmer	17	42.5
	Laborer	5	12.5
Parity	Nullipara	5	12.5
	Primipara	13	32.5
	Multipara	17	42.5
	Grande-multipara	5	12.5
Wealth status	First/Poorest	8	20.0
	Second	8	20.0
	Middle	11	27.5
	Fourth	5	12.5
	Fifth/richest	8	20.0
Knowledge of ANC visits	Good	16	40.0
	Sufficient	24	60.0
Attitudes	Positive	18	45.0
	Negative	22	55.0
Husband's support	Yes	19	47.5
	No	21	52.5
ANC Visits	≥4 times	19	47.5
	<4 times	21	52.5

Table 2 shows respondents' perspectives on various aspects of Antenatal Care (ANC). Majority responses reveal strong acknowledgment of the need for ANC visits (92.5%) and the belief in its benefits (77.5%). However, only a fraction agreed on specific recommendations like making at least four ANC visits (20.0%) or initiating the first visit within the first three months (20.0%). Clear consensus emerged regarding some danger signs during pregnancy, with most recognizing vaginal bleeding (97.5%) and high fever (87.5%) as potential threats. However, opinions were more divided concerning blurred vision (60.0%) or excessive nausea-vomiting (67.5%). Essential screenings such as tetanus vaccine (92.5%), hemoglobin examination (92.5%), and HIV testing (100.0%) were overwhelmingly considered crucial. Meanwhile, opinions diverged on the importance of blood screening tests (62.5%) and the necessity of food supplements (60.0%). There was near-unanimous agreement on aspects like consuming milk (95.0%) and vegetables (95.0%) during pregnancy, while beliefs about the necessity of rest during the day were more evenly split (65.0%).

Table 2. Distribution of husband's knowledge statement about Antenatal Care visits

No	Statement	Yes		No	
		n	%	n	%
1	Have you ever heard of Antenatal Care?	3	7.5	37	92.5
2	Do you think Antenatal Care is beneficial for pregnant women?	31	77.5	9	22.5
3	Do pregnant women have to make antenatal care visits?	37	92.5	3	7.5

No	Statement	Yes		No	
		n	%	n	%
4	Should pregnant women meet Antenatal Care visits at least 4 times during their pregnancy?	8	20.0	32	80.0
5	Should the first Antenatal Care visit be made within the first 3 months?	8	20.0	32	80.0
6	Is morning sickness during pregnancy normal?	18	45.0	22	55.0
7	Is vaginal bleeding during pregnancy a danger sign of pregnancy?	39	97.5	1	2.5
8	Is blurred vision a danger to pregnant women?	16	40.0	24	60.0
9	Is excessive nausea-vomiting a danger to pregnant women?	27	67.5	13	32.5
10	Is high fever a danger to pregnant women?	35	87.5	5	12.5
11	Should you take your mother to health care if there are danger signs during pregnancy?	40	100.0	14	0.0
12	Is tetanus vaccine important for pregnant women?	37	92.5	3	7.5
13	Are blood screening tests important for pregnant women?	25	62.5	15	37.5
14	Is hemoglobin examination important in pregnant women?	37	92.5	3	7.5
15	Is it important Sugar test in pregnant women?	32	80.0	8	20.0
16	Is hepatitis B testing important in pregnant women?	35	87.5	5	12.5
17	Is HIV testing important in pregnant women?	40	100.0	0	0.0
18	Should a pregnant woman consume food supplements?	24	60.0	16	40.0
19	Should pregnant women drink milk during pregnancy?	38	95.0	2	5.0
20	Should pregnant women eat vegetables during pregnancy	38	95.0	2	5.0
21	Does a pregnant woman need rest during the day?	26	65.0	14	35.0

Table 3 presents the distribution of husbands' support among 40 respondents. All husbands (100%) reported feeling happy when their wives attended prenatal check-ups, permitting and encouraging them to do so and providing financial support for ANC visits. Nearly all respondents (97.5%) respected their wives' decisions regarding the choice of checkup location and responded positively when their wives planned to attend ANC services. A similarly high proportion (97.5%) expressed concern for their wives' pregnancy care and responded well to the information delivered by health workers during ANC visits. All husbands also indicated that they did not become angry when their wives missed a prenatal checkup. In contrast, more direct forms of support, such as accompanying wives or providing transportation, were reported by a smaller proportion of respondents (37.5% each).

Table 3. Distribution of Husband Support for Antenatal Care (ANC)

No	Statement	Yes		No	
		n	%	n	%
1	Provide information about the importance of pregnancy checks	19	47.5	21	52.5
2	Get information about pregnancy by reading books/magazines	11	27.5	29	72.5
3	Give information during pregnancy at least check pregnant 4 times	6	15.0	34	85.0
4	My Mother recommend a pregnancy check to a health worker	38	95.0	2	5.0
5	Provide information on where to have a good and affordable prenatal checkup	25	62.5	15	37.5
6	Ever give praise to the mother when the mother has checked the pregnancy	29	72.5	11	27.5
7	Ever encourage the mother to make a pregnancy check-up visit	36	90.0	4	10.0
8	Feel happy when the mother checks the pregnancy	40	100.0	0	0.0
9	Respect my wife decision in choosing a place for a prenatal checkup	39	97.5	1	2.5
10	Give a positive response when you are going to check your pregnancy	39	97.5	1	2.5
11	mothers always given permission to have prenatal checks	40	100.0	0	0.0
12	Take the time when you do a prenatal checkup	15	37.5	25	62.5
13	Drive mom for a prenatal checkup	15	37.5	25	62.5
14	Give the money to check your pregnancy	40	100.0	0	0.0
15	I inform my wife about what she needs in order to attend her prenatal (ANC) visits.	25	62.5	15	37.5
16	I know when my wife should have her pregnancy check-ups.	13	32.5	27	67.5
17	I always remind my wife to attend her pregnancy check-up visits	23	57.5	17	42.5
18	I care about my wife's pregnancy care.	39	97.5	1	2.5
19	I respond well to the information provided by health workers during my wife's pregnancy check-ups	39	97.5	1	2.5
20	I feel concerned when my wife misses a scheduled prenatal check-up.	40	100.0	0	0.0

Table 4 shows that husband's with good knowledge of ANC are more likely to have four or more ANC visits than husband with sufficient or poor knowledge of ANC. Similarly, husband's with positive attitudes towards ANC are more likely to have four or more ANC visits than husband with negative attitudes towards ANC. Finally, women with husband support are more likely to have four or more ANC visits than women without husband support.

Table 4. Distribution of Antenatal Care Visits Based on Research Variables

Research Variables			ANC Visits		Total	P
			≥4	<4		
Knowledge	Good	n	12	4	16	0.004
		%	75.0	25.0		
	Sufficient	n	7	17	24	
		%	29.2	70.8		
Attitudes	Positive	n	10	8	18	0.356
		%	55.6	44.4		
	Negative	n	9	13	22	
		%	40.9	59.1		
Husband Support	Yes	n	14	5	19	0.002
		%	73.7	26.3		
	No	n	5	16	21	
		%	23.8	76.2		

Women who reported having their husbands' support were 4.9 times more likely to have four or more ANC visits than women who did not.

Table 5. Multivariate analysis of husband's support and knowledge of ANC visits

Variables	AOR	95% CI AOR
Husband's support		
Yes	4.9*	1.0 – 35.0
No	(Ref)	
Knowledge		
Good	3.0	0.5 – 18.7
Sufficient	(Reff)	

*p-value <0.05

DISCUSSION

A husband's knowledge and attitude play a significant role in their involvement in antenatal care (ANC) visits. Husbands' involvement in maternity care, especially starting from conception, throughout the pregnancy, childbirth, and PNC periods, has a positive influence on birth outcomes (18,19). Male involvement in ANC positively influenced overall service use and initial attendance. This is because most men control economic resources and are responsible for decisions regarding the use of maternal and newborn health services; making decisions in emergencies; and providing instrumental, emotional, and financial support in the form of money and transportation. However, a literature review using a narrative approach to husbands' feelings revealed different conditions. Although husbands want to get involved, support their wives, and learn about fetal health, they often feel excluded from perinatal screening decisions (20).

Level of education, occupation, and number of family members were significantly associated with men's knowledge of ANC (21). Husbands with higher educational and income levels were more likely to participate in ANC visits. A study in Mumbai, India, found that many husbands had a positive attitude toward involvement in ANC, although their knowledge regarding ANC was poor, and their awareness of danger signs of pregnancy was low (22,23). The husband's support is considered a contributing factor to a mother's access to healthcare services. This study indicated that the majority of respondents supported the presence of a companion during their first antenatal visit (24,25). One study found a relationship between husbands' support and health professionals' support through ANC visits. Midwives can play an active role in encouraging husbands to support their wives during ANC visits (22,26).

The sociocultural context of Wakai Village may also influence husbands' involvement in antenatal care. Similar to many rural settings in Indonesia, community norms often place husbands as primary decision makers regarding mobility, finances, and healthcare use. Prior studies have shown that cultural expectations and traditional gender roles shape husbands' support behaviors and women's access to ANC services (27,28). In several communities, pregnancy is perceived as a natural process that does not always require routine medical checks, leading families to rely heavily on customary practices (29). These norms may explain the variations in the types and intensity of support provided by husbands in this study, particularly regarding accompaniment and transportation.

Despite indicating generally supportive attitudes, this study found that husbands' knowledge and attitudes were not significantly associated with the frequency of ANC visits. Several contextual and methodological factors may explain these non-significant relationships. In many rural Indonesian settings, including Wakai Village, cultural norms often assign pregnancy-related decisions to extended family members or traditional birth attendants rather than husbands (27,30). Consequently, husbands' individual knowledge or attitudes may have a limited influence on actual service use. Additionally, routine ANC is commonly perceived as a natural, culturally expected activity for women regardless of the husband's personal knowledge level (29). Methodological factors may also contribute, as knowledge and attitude variables measured through self-reporting are prone to social desirability bias, particularly in collectivist communities where supportive behavior is socially valued (31). These mechanisms help explain why husband's support, representing concrete, observable actions, emerged as a stronger predictor than knowledge or attitudes. Cross-national findings, while useful for comparison, must therefore be interpreted with caution, as sociocultural norms in Wakai Village may moderate the influence of these variables in ways that differ from other settings.

A study in rural Bangladesh found that husbands accompanying their wives on ANC visits were positively associated with women receiving ANC from a medically trained provider, birth at a health facility, postnatal care from a medically trained provider, and seeking care from medically trained providers for obstetric complications

(32). Supportive attitudes displayed by husbands during their wives' pregnancies can bring joy and enhance expectant mothers' readiness during pregnancy until childbirth. Pregnancy care is not merely about maintaining pregnancy health, but also about understanding the prevention of pregnancy-related complications, childbirth, and postpartum care. If husbands display less supportive attitudes towards these aspects, they may contribute to maternal mortality rates. Conversely, husbands displaying caring and positive attitudes can influence expectant mothers' approaches either positively or negatively (33–35).

Limitations

This study had several methodological limitations. The research was conducted in a single rural village with a relatively small sample size of 40 respondents, which restricts the generalizability of the findings to a broader population. The use of self-reported questionnaires to assess husbands' knowledge, attitudes, and support may introduce recall and social desirability biases, particularly in a collectivist cultural setting where supportive behaviors are socially expected.

Furthermore, the cross-sectional design limits the ability to infer causality between husbands' characteristics and frequency of ANC visits. Because exposure and outcomes were measured simultaneously, the direction of influence cannot be established, and unmeasured confounding factors, such as extended family influence or community norms, may also have affected the observed associations. These limitations should be considered while interpreting the results of this study.

CONCLUSION

This study concluded that husband's support is the strongest factor associated with the frequency of antenatal care (ANC) visits among pregnant women in Wakai Village. Husbands who provided adequate support were significantly more likely to have wives complete four or more ANC visits than those who did not. Although husbands' knowledge of ANC and their attitudes toward pregnancy care showed positive tendencies, these factors were not consistently associated with the frequency of ANC visits.

Strengthening programs that enhance husbands' practical support, such as reminding their wives, providing resources, and facilitating access to ANC services, may improve their attendance in rural settings. Improving husbands' knowledge and attitudes remains important, but greater emphasis on actionable support behaviors is essential to increasing regular ANC utilization.

AUTHOR'S CONTRIBUTION STATEMENT

All authors contributed to the data analysis, drafting, and revision of the article and agreed to be responsible for all aspects of this work.

CONFLICTS OF INTEREST

No potential conflict of interest was reported by the authors

DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

We declare that the main content of this work is our own, and the intellectual contribution is entirely original. During the writing process, we used AI-assisted technology, specifically Grammarly, to check grammar, spelling, and sentence structure for clarity and correctness. Grammarly was used solely for language refinement and did not contribute to the generation of content, ideas, or analytical components of this work.

We confirm that the use of this technology complies with the ethical standards and guidelines applicable to academic writing and does not compromise the integrity of the work.

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