ISSN 2985-5667 (Online) | 2985-6353 (Print) | Vol. 4, No. 3, August (2026), pp. 135-145

Published by: IARN Institute

International Journal on Health and Medical Sciences

Journal homepage: https://journals.iarn.or.id/index.php/HealMed/index

Determinants of antenatal care attendance among women in Akabiluru District: A cross-sectional study

Vittria Meilinda[1], Qualita Fadhila Darsi[2]

[1]Midwifery Program, Universitas Fort De Kock, Bukittingi, Indonesia

[2]Puskesmas Akabiluru, Akabiluru, Indonesia

Article Info

Article history:

Received Jun 9, 2026
Revised Jun 23, 2026
Accepted Jul 14, 2026

Keywords:

Antenatal Care;
Health Promotion;
Husband Support
Maternal Health;
Motivation.

ABSTRACT

Antenatal care (ANC) is essential for the early detection of pregnancy complications and the preparation for safe childbirth. Despite national targets of 90% coverage for the fourth ANC visit (K4) and 80% for the sixth ANC visit (K6), ANC utilization in Akabiluru District remains below these standards. In 2024, K4 and K6 coverage reached only 65.2% and 67.6%, respectively, at Piladang Primary Health Center, while Batu Hampar Primary Health Center reported lower rates of 42.0% and 36.0%. This study aimed to identify factors associated with ANC visits among women in Akabiluru District. A descriptive quantitative study with a cross-sectional design was conducted among 48 postpartum mothers within two months after delivery, selected through total sampling. Data were collected using structured questionnaires and analyzed using frequency distribution and Chi-square tests. The findings revealed that most respondents were aged 20–34 years (79.2%), multiparous (66.7%), had completed senior high school education (58.3%), and had family incomes below the regional minimum wage (66.7%). More than half of the respondents had low knowledge (58.3%) and did not complete the recommended ANC visits (58.3%). Bivariate analysis showed that attitude (p=0.000), motivation (p=0.001), husband's support (p=0.008), and access to information media (p=0.000) were significantly associated with ANC visits. Knowledge, healthcare provider support, and socio-cultural factors were not significantly associated. Strengthening health promotion, antenatal education, and family planning programs may improve ANC utilization among pregnant women.

Corresponding Author:

Vittria Meilinda,
Midwifery Study Program,
Universitas Fort De Kock,
Jl. Soekarno Hatta No.11, Manggis Ganting, Kec. Mandiangin Koto Selayan, Kota Bukittinggi, Sumatera Barat,26117, Indonesia
Email: vittriameilinda@fdk.ac.id

1. INTRODUCTION

Maternal health remains a global public health priority because maternal mortality continues to be a major challenge, particularly in low- and middle-income countries. The World Health Organization (WHO) reported that approximately 260,000 women died from pregnancy- and childbirth-related causes worldwide in 2023, with the majority of these deaths considered preventable through timely access to quality maternal healthcare services. Antenatal care (ANC) is recognized as one of the most effective interventions for improving maternal and neonatal outcomes by facilitating early detection,

prevention, and management of pregnancy complications. Antenatal care provides an essential platform for health promotion, disease prevention, screening, diagnosis, and counseling throughout pregnancy. WHO emphasizes that quality ANC not only reduces maternal and neonatal morbidity and mortality but also contributes to a positive pregnancy experience. Consequently, adequate utilization of ANC services has become an important indicator of maternal healthcare quality worldwide. To improve maternal and newborn health outcomes, WHO recommends regular antenatal contacts throughout pregnancy. Adequate ANC utilization enables healthcare providers to identify risk factors, monitor fetal growth, promote healthy behaviors, and prepare mothers for safe delivery and postpartum care. Women who receive comprehensive ANC are more likely to experience favorable pregnancy outcomes compared with those who receive inadequate care. (World Health Organization, 2025).

Barriers such as limited access to healthcare facilities, socioeconomic constraints, insufficient health information, and cultural influences continue to hinder optimal ANC attendance. These disparities contribute to preventable maternal and neonatal complications, particularly in rural and underserved communities(Wulandari et al., 2021). In Indonesia, improving maternal health remains a national priority. The Ministry of Health has established targets for antenatal care coverage, including K4 and K6 visits, as part of efforts to reduce maternal and neonatal mortality. However, several regions continue to report ANC coverage below national targets, indicating persistent challenges in ensuring equitable access and utilization of maternal health services(Laksono et al., 2020)

Women who did not have problem in getting permission to use health services were 70% and 188% more likely to partially and adequately utilize health services compared to women who experienced problem getting permission. Women who did not have problem getting to health facility were 36% and 56% respectively more likely to partially and adequately utilize health services compared to women who experienced problem getting to health facility(Adedokun et al., 2023). Knowledge about danger signs during pregnancy also was found to be a predictor of ANC use among individual-level factors. Moreover, it is very important to promote ANC utilisation, which increases the odds of SBA and PNC use and encourages women to have individualised birth plans. To increase the utilisation of MHC services in the district, in addition to interventions targeting individual-level factors, a strong need exists to focus on community and district-level interventions, with a particular emphasis on the highland clusters. Future research also is needed to examine factors that can explain cluster-level variations in MHC service use and examine in depth the reasons for huge differences among clusters(Gurara et al., 2023)

Providing health education to women is critical in improving health service utilization. Disparity existed among different education group. That way they will be able to consume adequate health services they need. disparities in maternal services utilization happened among different socioeconomic groups. Government should initiate financial incentive programs focusing on maternal service. There was a maternal service utilization gap between women under poverty line and above the poverty line (Yang & Yu, 2023)

The association between high empowerment and high antenatal care attendance was driven primarily by greater decision-making power and control over assets. We found no association between freedom of movement and antenatal care attendance, which may mean this is not a limiting constraint to attending antenatal care in this population(Winters et al., 2023). In addition to strengthening health systems, community-based initiatives such as women's groups to raise awareness of the importance of early and frequent ANC contacts and linking pregnant mothers to the healthcare system are needed. There is a need to promote education for girls and women and enable women's economic empowerment(Negero et al., 2023). The low K4 and K6 coverage found in this study indicates that many women remain below the WHO recommendation. Failure to achieve the recommended number of contacts may limit opportunities for screening, counseling, immunization, nutritional interventions, and early management of pregnancy complications.

Therefore, local health authorities should strengthen efforts to increase ANC compliance beyond the minimum national targets(Setu & Majumder, 2023)

Although numerous studies have investigated the determinants of antenatal care (ANC) utilization, several research gaps remain. First, previous studies have predominantly been conducted in urban settings or areas with relatively high ANC coverage, whereas evidence from rural districts with persistently low ANC utilization is still limited. Akabiluru District represents one such area where the coverage of both the fourth (K4) and sixth (K6) ANC visits remains substantially below the national targets, highlighting the need for context-specific evidence. Second, most earlier studies assessed ANC utilization based on the previous national standard of four antenatal visits (K4). With the implementation of Indonesia's updated maternal health policy recommending a minimum of six ANC visits (K6), there is a lack of research evaluating the determinants of ANC utilization according to this revised standard. This study addresses that gap by examining ANC attendance within the framework of the current national guidelines. Third, previous research has often focused on a limited number of determinants, such as maternal knowledge, educational level, or socioeconomic status. In contrast, this study simultaneously examines multiple individual, familial, healthcare, and environmental factors, including knowledge, attitude, motivation, healthcare provider support, husband's support, access to information media, and socio-cultural influences. This comprehensive approach provides a broader understanding of the factors associated with ANC utilization. Finally, the findings of previous studies regarding the determinants of ANC utilization have been inconsistent. While several studies have identified maternal knowledge and healthcare provider support as significant predictors, the present study found that attitude, motivation, husband's support, and access to information media were significantly associated with ANC visits, whereas knowledge, healthcare provider support, and socio-cultural factors were not. These differences suggest that the determinants of ANC utilization may vary according to local socioeconomic and healthcare contexts, emphasizing the importance of conducting context-specific research to inform targeted maternal health interventions.

Akabiluru District is one of the areas where ANC coverage remains suboptimal. Data from 2024 indicated that the achievement of K4 and K6 coverage at Piladang and Batu Hampar Primary Health Centers was still below the national targets. These findings suggest that a considerable proportion of pregnant women may not be receiving adequate antenatal services, potentially increasing the risk of adverse maternal and neonatal outcomes. Understanding these determinants is essential for designing effective interventions to improve ANC attendance. Knowledge regarding pregnancy and ANC services is considered an important determinant of maternal healthcare-seeking behavior. Women with adequate knowledge are more likely to recognize the benefits of routine pregnancy examinations and seek timely healthcare services. Similarly, positive attitudes and strong motivation have been associated with increased compliance with recommended ANC schedules.

2. RESEARCH METHOD

This study employed a quantitative descriptive design with a cross-sectional approach to identify factors associated with antenatal care (ANC) visits among women in Akabiluru District, Lima Puluh Kota Regency, West Sumatra, Indonesia. The cross-sectional design was selected because it allows the simultaneous assessment of independent and dependent variables at a single point in time, thereby enabling the examination of relationships between factors influencing ANC utilization. The study population consisted of postpartum mothers residing in the working areas of Piladang Primary Health Center and Batu Hampar Primary Health Center. Eligible participants were mothers who had delivered within the previous two months and were willing to participate in the study. Mothers who were unable to communicate effectively or had incomplete data were excluded from the study. The categorization of each study variable was based on the respondents' total scores obtained from the structured questionnaire. Knowledge was assessed using multiple-choice questions, with correct answers scored as 1 and incorrect answers as 0.

3. RESULTS AND DISCUSSIONS

Table 1. Characteristics of respondents (n = 48)

Characteristics	Frequency (n)	Percentage (%)
Age		
< 20 years	1	2.1
20–34 years	38	79.2
≥ 35 years	9	18.7
Parity		
Primiparous	14	29.2
Multiparous	32	66.7
Grand Multiparous	2	4.1
Educational Level		
Elementary School or Equivalent	1	2.1
Junior High School or Equivalent	6	12.5
Senior High School or Equivalent	28	58.3
Diploma/Bachelor's Degree	13	27.1
Marital Status		
Married	47	97.9
Unmarried	1	2.1
Health Insurance Coverage		
Covered by Health Insurance	44	91.7
Not Covered by Health Insurance	4	8.3
Husband's Occupation		
Civil Servant	1	2.1
Casual Laborer	5	10.4
Honorary Teacher	1	2.1
Private Sector Employee	11	22.9
Trader	3	6.3
Farmer	14	29.2
Driver	5	10.4
Construction Worker	1	2.1
Entrepreneur	6	12.5
Village Public Order Officer (THL)	1	2.1
Family Income		
< IDR 2,994,193.47	32	66.7
≥ IDR 2,994,193.47	16	33.3
Distance from Home to Health Facility		
< 5 km	29	60.4
≥ 5 km	19	39.6

Table 1 presents the demographic characteristics of the respondents. The majority of respondents were aged 20–34 years (79.2%), while 18.7% were aged 35 years or older and only 2.1% were younger than 20 years. Regarding parity, most respondents were multiparous (66.7%), followed by primiparous women (29.2%), whereas grand multiparous women accounted for only 4.1% of the sample. In terms of educational attainment, more than half of the respondents had completed senior high school education (58.3%), followed by diploma or bachelor's degree holders (27.1%). A smaller proportion had completed junior high school (12.5%) or elementary school (2.1%). Almost all respondents were married (97.9%), with only one respondent (2.1%) reporting unmarried status. Most respondents were covered by health insurance (91.7%), while 8.3% did not have health insurance coverage. Regarding occupation, the majority were housewives (75.0%). Respondents' husbands worked as farmers (29.2%), followed by private sector employees (22.9%) and entrepreneurs (12.5%). Casual laborers and drivers each accounted for 10.4% of the sample, while traders represented 6.3%. A smaller proportion of husbands were employed as civil servants (2.1%), honorary teachers (2.1%), construction workers (2.1%), and village public order officers (2.1%). Regarding family income, two-thirds of respondents (66.7%) reported a monthly family income below the regional minimum wage (IDR 2,994,193.47), while 33.3% had an income equal to or above the regional minimum wage. In terms of geographical access to healthcare services, most

respondents (60.4%) lived within 5 kilometers of a health facility, whereas 39.6% resided more than 5 kilometers away.

Women from lower-income households are more likely to delay ANC initiation and fail to complete recommended visits(Alibhai et al., 2022). Geographical accessibility remains an important determinant of ANC utilization. Women living farther from healthcare facilities frequently encounter transportation challenges and higher travel costs, reducing attendance rates. This factor may partly explain the lower ANC coverage observed in Batu Hampar Health Center(Alibhai et al., 2022).

Table 2. Distribution of respondents according to knowledge, attitude, motivation, husband's support, healthcare provider support, socio-cultural factors, information media, and antenatal care visits (n = 48)

Variable	Frequency (n)	Percentage (%)
Knowledge		
High	20	41.7
Low	28	58.3
Attitude		
Positive	32	66.7
Negative	16	33.3
Motivation		
Positive	24	50.0
Negative	24	50.0
Husband's Support		
Supportive	24	50.0
Not Supportive	24	50.0
Healthcare Provider Support		
Supportive	32	66.7
Not Supportive	16	33.3
Socio-Cultural Factors		
Positive	26	54.2
Negative	22	45.8
Information Media		
Good	28	58.3
Fair	20	41.7
ANC Visits		
Complete	20	41.7
Incomplete	28	58.3

The results of the univariate analysis are presented in Table 2. Regarding knowledge of antenatal care, more than half of the respondents (58.3%) demonstrated a low level of knowledge, while 41.7% had a high level of knowledge. These findings indicate that a considerable proportion of mothers may have limited understanding of the importance, schedule, and benefits of antenatal care services. In terms of attitude, the majority of respondents (66.7%) exhibited a positive attitude toward antenatal care, whereas 33.3% showed a negative attitude. This suggests that most mothers perceived antenatal care as an important component of maternal health during pregnancy. With respect to motivation, respondents were equally distributed between positive and negative motivation, each accounting for 50.0% of the sample. This finding indicates variability in the internal drive of mothers to seek and utilize antenatal care services regularly. Although maternal age was not analyzed as a determinant in this study, most respondents were aged 20–34 years (79.2%), which is considered the optimal reproductive age. Previous studies have shown that maternal age significantly influences ANC utilization because younger women often lack pregnancy experience, while older women may underestimate pregnancy risks due to previous childbirth experiences(Baten et al., 2025). Multiparous women may perceive themselves as more experienced during pregnancy, reducing the perceived need for frequent ANC visits. Several studies indicate that primigravida mothers tend to attend ANC more regularly due to anxiety and uncertainty regarding pregnancy outcomes. Conversely, multiparous women often rely on previous experiences and may delay or reduce ANC attendance(Alibhai et al., 2022)

The present study found that attitude, motivation, husband's support, and access to information media were significantly associated with ANC visits, whereas knowledge, healthcare provider support, and socio-cultural factors were not significantly associated. These findings are partly consistent with previous studies that identified family support, maternal motivation, and positive attitudes as important determinants of ANC utilization. However, they differ from several earlier studies that reported maternal knowledge and healthcare provider support as significant predictors of ANC attendance. Regarding husband's support, half of the respondents (50.0%) reported receiving support from their husbands, while the remaining half reported a lack of support. This result highlights the varying levels of spousal involvement in maternal healthcare utilization among the study population. Most respondents (66.7%) reported receiving support from healthcare providers, whereas 33.3% indicated insufficient support. This finding suggests that healthcare professionals generally play an active role in encouraging mothers to access antenatal care services. In terms of socio-cultural influences, more than half of the respondents (54.2%) experienced positive socio-cultural factors, while 45.8% reported negative socio-cultural influences. These findings indicate that cultural beliefs and social norms may affect maternal healthcare-seeking behavior to varying degrees.

The finding that 58.3% of respondents did not complete the recommended antenatal care (ANC) visits indicates that maternal health service utilization in Akabiluru District remains suboptimal despite the implementation of the national ANC policy. This has important public health implications because inadequate ANC attendance may delay the early detection and management of pregnancy-related complications, reduce opportunities for preventive interventions such as nutritional counseling, immunization, and screening, and ultimately increase the risk of adverse maternal and neonatal outcomes. Furthermore, the low ANC utilization reflects the need to strengthen maternal health promotion, improve access to reliable health information, and encourage greater family involvement, particularly husband's support, to increase compliance with the recommended ANC schedule. These findings suggest that interventions should focus not only on improving healthcare accessibility but also on addressing behavioral and family-related factors that influence ANC utilization.

Table 3. Association between motivation, husband's support, healthcare workers' support, socio-cultural factors, information media, and antenatal care (ANC) Visits

Variable	Category	ANC Visits Compliant n (%)	ANC Visits Non-Compliant n (%)	Total n (%)	p-value
Motivation	Positive	16 (33.3)	8 (16.7)	24 (50.0)	0.001
	Negative	4 (8.3)	20 (41.7)	24 (50.0)	
Husband's Support	Supportive	15 (31.2)	9 (18.8)	24 (50.0)	0.008
	Not Supportive	5 (10.4)	19 (39.6)	24 (50.0)	
Healthcare Workers' Support	Supportive	16 (33.3)	16 (33.3)	32 (66.7)	0.178
	Not Supportive	4 (8.3)	12 (25.0)	16 (33.3)	
Socio-Cultural Factors	Positive	14 (29.2)	12 (25.0)	26 (54.2)	0.117
	Negative	6 (12.6)	16 (33.3)	22 (45.8)	
Information Media	Good	20 (41.7)	8 (16.6)	28 (58.3)	<0.001
	Fair	0 (0.0)	20 (41.7)	20 (41.7)	

Table 3 presents the association between motivation, husband's support, healthcare workers' support, socio-cultural factors, information media, and compliance with Antenatal Care (ANC) visits among pregnant women. The results showed that motivation was significantly associated with ANC visit compliance (p = 0.001). Among respondents with positive motivation, 16 (33.3%) were compliant with ANC visits, while 8 (16.7%) were non-compliant. In contrast, among respondents with negative motivation, only 4 (8.3%) were compliant, whereas 20 (41.7%) were non-compliant. Husband's

support was also significantly associated with ANC visit compliance (p = 0.008). Among respondents who received support from their husbands, 15 (31.2%) were compliant with ANC visits and 9 (18.8%) were non-compliant. Conversely, among those who did not receive support, 5 (10.4%) were compliant and 19 (39.6%) were non-compliant.

There was no significant association between healthcare workers' support and ANC visit compliance (p = 0.178). Of the respondents who received support from healthcare workers, 16 (33.3%) were compliant and 16 (33.3%) were non-compliant. Among those who did not receive such support, 4 (8.3%) were compliant and 12 (25.0%) were non-compliant. Likewise, socio-cultural factors were not significantly associated with ANC visit compliance (p = 0.117). Among respondents with positive socio-cultural influences, 14 (29.2%) were compliant with ANC visits and 12 (25.0%) were non-compliant. Among those with negative socio-cultural influences, 6 (12.6%) were compliant and 16 (33.3%) were non-compliant. In contrast, information media showed a significant association with ANC visit compliance (p < 0.001). Among respondents who had good access to information media, 20 (41.7%) were compliant with ANC visits, while 8 (16.6%) were non-compliant. Meanwhile, among respondents with only fair access to information media, none (0.0%) were compliant and 20 (41.7%) were non-compliant. Overall, the findings indicate that motivation, husband's support, and information media were significantly associated with ANC visit compliance, whereas healthcare workers' support and socio-cultural factors were not significantly associated with ANC visit compliance among pregnant women.

Completing K4 and K6 visits is closely associated with early ANC initiation during the first trimester. Women who begin ANC early have more opportunities to receive comprehensive maternal healthcare services. Delayed initiation often results in failure to achieve the recommended number of visits(Ahinkorah et al., 2021). The quality of ANC services may affect attendance regardless of accessibility. Women who perceive healthcare providers as respectful, competent, and supportive are more likely to continue ANC visits. Poor service quality, long waiting times, and inadequate communication often discourage attendance(Khatri et al., 2022). They are also more likely to recognize pregnancy early and initiate ANC in the first trimester. Conversely, unplanned pregnancies are often associated with delayed ANC initiation and lower compliance with recommended visits. This factor may partly explain the low ANC completion rate observed among some respondents(Sitepu et al., 2023). Women who perceive pregnancy as a potentially risky condition are more likely to attend ANC regularly. Risk perception encourages mothers to seek professional care for monitoring fetal growth, detecting complications, and receiving preventive interventions. Women with previous adverse pregnancy outcomes often show higher compliance with ANC schedules because they understand the potential consequences of inadequate care(Chilot et al., 2023)

Motivation and ANC Visit Compliance

The findings showed a significant relationship between maternal motivation and ANC visit compliance (p = 0.001). This finding is consistent with behavioral theories suggesting that internal motivation influences an individual's willingness to utilize health services. Women who understand the importance of ANC are more likely to prioritize regular check-ups throughout pregnancy. Furthermore, previous studies in Indonesia have shown that awareness and knowledge regarding pregnancy care contribute significantly to the utilization of ANC services. (Thakkar et al., 2022)

Positive attitudes toward ANC may increase awareness of the importance of routine pregnancy monitoring, early detection of complications, and preparation for childbirth. Similar findings have been reported in studies conducted in Tanzania and other low- and middle-income countries, where favorable attitudes toward maternal healthcare significantly improved healthcare-seeking behavior during pregnancy. Furthermore, maternal attitudes are often shaped by previous experiences, health education, and interactions with healthcare providers, which collectively influence ANC utilization(Moshi et al., 2020).

Husband's Support and ANC Visit Compliance

This study found a significant association between husband's support and ANC visit compliance (p = 0.008). Pregnant women who received support from their husbands were more likely to comply with ANC visits than those who did not receive support. Husband's support may be provided in various forms, including emotional support, financial assistance, transportation, and encouragement to attend health services. Such support can increase women's confidence and facilitate access to healthcare facilities. In many Indonesian families, husbands are key decision-makers regarding healthcare utilization; therefore, their involvement greatly influences maternal health behaviors. These findings are in line with previous studies which reported that husband support is an important determinant of ANC attendance. Research by Hanifah et al. (2018) found that husband support strongly motivates pregnant women to attend ANC visits. Likewise, studies conducted in Indonesia demonstrated that women receiving husband support were more likely to complete recommended ANC visits. (Hanifah et al., 2018)

Therefore, supportive husbands can substantially influence maternal health-seeking behavior. These findings are consistent with previous studies showing that husband involvement significantly increases ANC attendance and maternal healthcare utilization. Laksono et al. (2022) reported that husband participation is a key predictor of ANC utilization among Indonesian women. Likewise, recent evidence suggests that practical support from husbands contributes more strongly to ANC compliance than knowledge alone(Laksono et al., 2022). The significant role of husband support identified in this study aligns with evidence showing that male involvement improves maternal health service utilization. Husbands who accompany their wives to ANC visits contribute to better compliance, emotional well-being, and healthcare decision-making(Shine et al., 2020).

Healthcare Workers' Support and ANC Visit Compliance

The results indicated no significant relationship between healthcare workers' support and ANC visit compliance (p = 0.178). Although healthcare professionals play an important role in providing health education and counseling, their support alone may not be sufficient to influence ANC attendance. Therefore, improving ANC utilization requires not only quality healthcare services but also strengthening family and community involvement. (Paunno et al., 2026). Although statistical significance was not observed, healthcare providers remain essential in delivering quality ANC services. Effective communication, counseling, and respectful maternity care contribute to positive pregnancy experiences and may indirectly influence future healthcare utilization. The absence of a significant relationship in this study does not diminish the importance of healthcare workers in maternal health promotion(Hasni et al., 2026)

Socio-Cultural Factors and ANC Visit Compliance

No significant association was found between socio-cultural factors and ANC visit compliance (p = 0.117). This finding suggests that socio-cultural beliefs may not be the primary determinant of ANC attendance among the respondents. The absence of a significant relationship may be attributed to increasing public awareness regarding maternal health and broader access to health information. As health promotion activities become more widespread, traditional beliefs that previously discouraged healthcare utilization may gradually lose their influence. Nevertheless, socio-cultural norms may still indirectly affect maternal health behaviors in certain communities, particularly where family decision-making and traditional practices remain strong. (Paunno et al., 2026). Similar observations have been reported in regions where modernization and health promotion programs have contributed to greater acceptance of formal healthcare services during pregnancy(Agus & Horiuchi, 2012). Social capital refers to trust, social networks, and community participation that facilitate access to healthcare. Strong social networks can encourage pregnant women to attend ANC visits through emotional support, information sharing, and practical assistance. Community-based support systems have been associated with increased maternal healthcare utilization(Mengesha et al., 2021).

Information Media and ANC Visit Compliance

Information media was significantly associated with ANC visit compliance ($p < 0.001$). Respondents with good access to information media were more likely to comply with ANC visits than those with only fair access. Information obtained through television, radio, social media, internet platforms, and health promotion materials can increase knowledge and awareness regarding the importance of routine ANC visits. Women who are exposed to adequate health information tend to demonstrate better health-seeking behaviors and greater compliance with recommended ANC visits. (Sendy Ayu Mitra Uktutias et al., 2021). Previous studies in Indonesia have demonstrated that limited exposure to mass media is associated with underutilization of ANC services. Access to information empowers women to make informed decisions regarding pregnancy care and encourages timely healthcare-seeking behavior(Thakkar et al., 2022). Higher education also enhances women's autonomy and decision-making power regarding maternal healthcare(Baten et al., 2025).

The significant association between media access and ANC attendance observed in this study may reflect the growing role of digital health information. Pregnant women increasingly use social media, websites, and mobile applications to obtain pregnancy-related information. Digital health platforms can improve maternal health literacy, increase awareness of ANC schedules, and encourage timely healthcare-seeking behavior(Ofori et al., 2023). Overall, this study that motivation, husband's support, and information media are important factors influencing ANC visit compliance among pregnant women.

4. CONCLUSION

Based on the findings of this study, it can be concluded that attitude, motivation, husband's support, and information media have a significant relationship with Antenatal Care (ANC) visits in Akabiluru District. Meanwhile, knowledge, healthcare workers' support, and socio-cultural factors do not have a significant relationship with ANC visits in Akabiluru District. This study contributes to maternal health research by providing updated evidence on the determinants of antenatal care (ANC) utilization based on Indonesia's current six-visit (K6) recommendation. It highlights that maternal attitude, motivation, husband's support, and access to health information are more influential than knowledge alone in promoting ANC attendance. The findings provide context-specific evidence from a low-coverage area and offer practical guidance for developing family-centered health promotion strategies to improve ANC utilization and maternal health outcomes.

ACKNOWLEDGEMENTS

The authors would like to express their sincere gratitude to all individuals and institutions who contributed to the completion of this study. Special appreciation is extended to the respondents who willingly participated in this research and provided valuable information. The authors also thank the healthcare workers and local authorities in Akabiluru District for their support and cooperation during the data collection process. Furthermore, the authors are grateful to their supervisors, colleagues, and family members for their guidance, encouragement, and continuous support throughout the research process. Their contributions and assistance have been invaluable in the successful completion of this study. Finally, the authors acknowledge all parties who have directly or indirectly contributed to this research but whose names cannot be mentioned individually.

REFERENCES

Adedokun, S. T., Uthman, O. A., & Bisiriyu, L. A. (2023). Determinants of partial and adequate maternal health services utilization in Nigeria: analysis of cross-sectional survey. *BMC Pregnancy and Childbirth*, *23*(1), 1–11. https://doi.org/10.1186/s12884-023-05712-4

Agus, Y., & Horiuchi, S. (2012). Factors influencing the use of antenatal care in rural West Sumatra, Indonesia. *BMC Pregnancy and Childbirth*, *12*. https://doi.org/10.1186/1471-2393-12-9

Ahinkorah, B. O., Ameyaw, E. K., Seidu, A. A., Odusina, E. K., Keetile, M., & Yaya, S. (2021). Examining barriers to healthcare access and utilization of antenatal care services: evidence from demographic health surveys in sub-Saharan Africa. *BMC Health Services Research*, *21*(1), 1–16. https://doi.org/10.1186/s12913-021-06129-5

Alibhai, K. M., Ziegler, B. R., Meddings, L., Batung, E., & Luginaah, I. (2022). Factors impacting antenatal care utilization: a systematic review of 37 fragile and conflict-affected situations. *Conflict and Health*, *16*(1), 1–16. https://doi.org/10.1186/s13031-022-00459-9

Baten, A., Biswas, R. K., Kendal, E., & Bhowmik, J. (2025). Utilization of maternal healthcare services in low- and middle-income countries: a systematic review and meta-analysis. *Systematic Reviews*, *14*(1). https://doi.org/10.1186/s13643-025-02832-0

Chilot, D., Belay, D. G., Ferede, T. A., Shitu, K., Asratie, M. H., Ambachew, S., Shibabaw, Y. Y., Geberu, D. M., Deresse, M., & Alem, A. Z. (2023). Pooled prevalence and determinants of antenatal care visits in countries with high maternal mortality: A multi-country analysis. *Frontiers in Public Health*, *11*. https://doi.org/10.3389/fpubh.2023.1035759

Gurara, M. K., Draulans, V., Van Geertruyden, J. P., & Jacquemyn, Y. (2023). Determinants of maternal healthcare utilisation among pregnant women in Southern Ethiopia: a multi-level analysis. *BMC Pregnancy and Childbirth*, *23*(1), 1–16. https://doi.org/10.1186/s12884-023-05414-x

Hanifah, A., Pratomo, H., & Hoang, G. (2018). Husband's support for their wives in antenatal care visit. *Kesmas*, *13*(1), 8–16. https://doi.org/10.21109/kesmas.v13i1.1565

Hasni, H., Saman, S., Ariyanti, N., Evie, S., & Enggar, E. (2026). *Determinants of Antenatal Care Utilization Among Pregnant Women : A Qualitative Study*. *15*(1), 283–293.

Khatri, R. B., Mengistu, T. S., & Assefa, Y. (2022). Input, process, and output factors contributing to quality of antenatal care services: a scoping review of evidence. *BMC Pregnancy and Childbirth*, *22*(1), 1–15. https://doi.org/10.1186/s12884-022-05331-5

Laksono, A. D., Rukmini, R., & Wulandari, R. D. (2020). Regional disparities in antenatal care utilization in Indonesia. *PLoS ONE*, *15*(2), 1–13. https://doi.org/10.1371/journal.pone.0224006

Laksono, A. D., Wulandari, R. D., Widya Sukoco, N. E., & Suharmiati, S. (2022). Husband's involvement in wife's antenatal care visits in Indonesia: What factors are related? *Journal of Public Health Research*, *11*(2). https://doi.org/10.1177/22799036221104156

Mengesha, E. W., Alene, G. D., Amare, D., Assefa, Y., & Tessema, G. A. (2021). Social capital and maternal and child health services uptake in low- and middle-income countries: mixed methods systematic review. *BMC Health Services Research*, *21*(1), 1–16. https://doi.org/10.1186/s12913-021-07129-1

Moshi, F. V., Kibusi, S. M., & Fabian, F. (2020). Exploring factors influencing pregnant Women's attitudes, perceived subjective norms and perceived behavior control towards male involvement in maternal services utilization: a baseline findings from a community based interventional study from Rukwa, rural Tanzania. *BMC Pregnancy and Childbirth*, *20*(1), 1–12. https://doi.org/10.1186/s12884-020-03321-z

Negero, M. G., Sibbritt, D., & Dawson, A. (2023). Women's utilisation of quality antenatal care, intrapartum care and postnatal care services in Ethiopia: a population-based study using the demographic and health survey data. *BMC Public Health*, *23*(1), 1–18. https://doi.org/10.1186/s12889-023-15938-8

Ofori, P. P., Kubuga, K. K., & Louis, D. K. (2023). Factors Influencing Expectant Mothers' Continued Use of Digital Health Information. *Indonesian Journal of Health Administration*, *11*(2), 231–241. https://doi.org/10.20473/jaki.v11i2.2023.231-241

Paunno, M., Maspaitella, M. J., Tuasela, J. A., Titarsole, C., Talarima, B., Lawalata, I. V., Titarsole, N. N., & Manuhutu, N. (2026). Factors influencing husbands' participation in antenatal care: A study in Maluku, Indonesia. *Health SA Gesondheid*, *31*, 1–9. https://doi.org/10.4102/hsag.v31i0.3354

Sendy Ayu Mitra Uktutias, Ade Ayu Mitra Ramadita Daluas, Sri Iswati, & Cholichul Hadi. (2021). The Regularity of Antenatal Care through Knowledge of Pregnant Women and Support from Husbands. *Indian Journal of Forensic Medicine & Toxicology*, *15*(4), 2448–2453. https://doi.org/10.37506/ijfmt.v15i4.17072

Setu, S. P., & Majumder, U. K. (2023). A multilevel analysis to determine the factors affecting WHO recommended quantity antenatal care utilizations of pregnant women in Bangladesh. *Heliyon*, *9*(6), e16294. https://doi.org/10.1016/j.heliyon.2023.e16294

Shine, S., Derseh, B., Alemayehu, B., Hailu, G., Endris, H., Desta, S., & Birhane, Y. (2020). Magnitude and associated factors of husband involvement on antenatal care follow up in Debre Berhan town, Ethiopia 2016: A cross sectional study. *BMC Pregnancy and Childbirth*, *20*(1), 1–7. https://doi.org/10.1186/s12884-020-03264-5

Sitepu, F., Tamtomo, D., & Prasetya, H. (2023). Meta-Analysis the Effects of Education, Pregnancy Planning, Husband Support, and Distance to Health Facilities on the Utilization of Antenatal Care Service. *Journal of Maternal and Child Health*, *8*(4), 510–525. https://doi.org/10.26911/thejmch.2023.08.04.12

Thakkar, N., Alam, N., & Saaxena, D. (2022). Factors associated with the utilization of antenatal care services in Indonesia. *BMC Public Health*, *22*(1), 1–12.

Winters, S., Pitchik, H. O., Akter, F., Yeasmin, F., Jahir, T., Huda, T. M. N., Rahman, M., Winch, P. J., Luby, S. P., & Fernald, L. C. H. (2023). How does women's empowerment relate to antenatal care attendance? A cross-sectional analysis among rural women in Bangladesh. *BMC Pregnancy and Childbirth*, *23*(1), 1–12. https://doi.org/10.1186/s12884-023-05737-9

World Health Organization. (2025). Trends in maternal mortality estimates 2000 to 2023: estimates by WHO, UNICEF, UNFPA, World Bank Group and UNDESA/Population Division. In *WHO, Geneva*.

Wulandari, R. D., Laksono, A. D., & Rohmah, N. (2021). Urban-rural disparities of antenatal care in South East Asia: a case study in the Philippines and Indonesia. *BMC Public Health*, *21*(1), 1–9. https://doi.org/10.1186/s12889-021-11318-2

Yang, Y., & Yu, M. (2023). Disparities and determinants of maternal health services utilization among women in poverty-stricken rural areas of China: a cross-sectional study. *BMC Pregnancy and Childbirth*, *23*(1), 1–14. https://doi.org/10.1186/s12884-023-05434-7