

PREDICTORS OF LATE INITIATION OF ANTENATAL CARE AMONG MUSLIM WOMEN IN PIDIE DISTRICT, ACEH

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ABSTRACT

Late initiation of antenatal care (ANC) remains a public health concern in Aceh, contributing to adverse maternal and neonatal outcomes. This study aimed to identify predictors of late ANC initiation and factors influencing ANC visit frequency among Muslim women in Pidie District. A predictive correlational study was conducted with 80 postpartum women selected using purposive sampling. Data were collected through structured questionnaires covering sociodemographic characteristics, obstetric history, knowledge, perceptions, beliefs, and social support. Analyses included descriptive statistics, Chi-square tests, Spearman correlation, and binary logistic regression. Results showed that 55% of participants initiated ANC after 12 weeks of gestation, with only 25%

completing the recommended minimum of four visits. Key barriers included long distances to health facilities (62%), cultural or religious beliefs (35%), economic constraints (28%), and limited ANC knowledge (40%). Logistic regression identified significant predictors of late ANC initiation: distance from health facility (AOR = 1.08; $p = 0.005$), lower knowledge about ANC (AOR = 0.72; $p = 0.03$), and history of abortion (AOR = 6.12; $p = 0.01$). Family support, particularly from husbands, and guidance from community health volunteers were also influential in timely ANC attendance. In conclusion, both accessibility and maternal knowledge are key determinants of ANC utilization in Pidie. Interventions such as community-based education, telehealth support, and culturally sensitive counseling are recommended to improve timely ANC initiation and adherence, ultimately enhancing maternal and neonatal health outcomes.

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INTRODUCTION

Antenatal care (ANC) is a fundamental component of maternal health services, designed to monitor and promote the health and well-being of both the mother and the developing fetus throughout pregnancy. Timely initiation and regular attendance of ANC visits are strongly associated with favorable maternal and neonatal outcomes, including the early detection and management of pregnancy complications, prevention of maternal

anemia, promotion of appropriate nutrition, and improved birth outcomes such as healthy birth weight and reduced perinatal mortality (World Health Organization [WHO], 2016). ANC also serves as a platform for health education, psychosocial support, and counseling on family planning, breastfeeding, and immunization, which collectively contribute to long-term maternal and child health.

Despite global initiatives to improve maternal health, delayed initiation of ANC remains a persistent challenge, particularly in low- and middle-income countries. Late ANC initiation—commonly defined as the first ANC visit occurring after 12 weeks of gestation limits the effectiveness of interventions aimed at reducing maternal and neonatal morbidity and mortality. In Indonesia, maternal mortality remains a significant public health concern, with an estimated 289 deaths per 100,000 live births in 2018 (Ministry of Health, 2019). In Aceh Province, maternal mortality rates are even higher, reflecting the combined influence of geographic, cultural, socioeconomic, and healthcare system factors.

Several determinants contribute to late ANC initiation. Sociodemographic factors such as maternal age, education, occupation, and household income influence health-seeking behaviors, while obstetric factors, including parity, previous pregnancy complications, and history of abortion, can shape maternal perceptions of risk and urgency in seeking care. Geographic accessibility, particularly distance to health facilities, is a major barrier in rural areas, where poor infrastructure and transportation challenges limit timely access to maternal health services. Cultural and religious beliefs, traditional practices, and family dynamics also play significant roles in shaping ANC utilization. Social support from husbands, extended family, and community health volunteers can either facilitate or impede timely attendance (Hidayati et al., 2020; Putri et al., 2018).

In Pidie District, Aceh, Muslim women constitute the majority of the population, and local cultural practices, religious beliefs, and community norms may influence maternal health behaviors, including ANC attendance. Previous studies have suggested that women with limited knowledge regarding pregnancy risks, minimal family support, or previous adverse pregnancy experiences are more likely to delay ANC initiation (Rahmawati & Saputra, 2019). However, empirical evidence specifically examining predictors of late ANC initiation among Muslim women in Pidie District remains scarce.

Understanding the factors that contribute to late ANC initiation is critical for designing culturally sensitive, context-specific interventions that promote early and consistent use of maternal health services. Timely ANC attendance not only improves

maternal and neonatal health outcomes but also strengthens the overall healthcare system by facilitating early risk identification and targeted interventions. Therefore, this study aims to identify the key factors influencing late initiation of ANC and the frequency of ANC visits among Muslim women in Pidie District, Aceh, to inform public health strategies and policy development in the region.

METHODS

This study employed a predictive correlational design to identify factors influencing late initiation of antenatal care (ANC) among Muslim women in Pidie District, Aceh. This quantitative approach allows for the examination of relationships between sociodemographic, obstetric, and psychosocial variables and the timing of ANC initiation.

The population consisted of postpartum women residing in Pidie District who had experienced delayed ANC initiation. A total of 80 participants were recruited using purposive sampling, based on the inclusion criteria of being Muslim, having a singleton pregnancy, and providing informed consent. Women with severe medical conditions that could interfere with ANC attendance were excluded.

Data collection instruments included a structured questionnaire covering: (1) sociodemographic characteristics (age, education, occupation, household income), (2) obstetric history (parity, history of abortion, previous pregnancy complications), (3) knowledge and beliefs regarding ANC, and (4) social support related to maternal healthcare. The questionnaire was developed based on previous studies and adapted to the local context.

Prior to the main study, the instrument underwent validity and reliability testing. Content validity was assessed by a panel of three maternal health experts, and items were refined based on their recommendations. Reliability was evaluated using Cronbach's alpha, yielding a coefficient of 0.82, indicating good internal consistency.

Data analysis involved descriptive statistics to summarize participants' characteristics and ANC attendance patterns. Associations between independent variables and late ANC initiation were examined using Chi-square tests and Spearman's rank correlation. Binary logistic regression was conducted to identify significant predictors of late ANC initiation, with adjusted odds ratios (AOR) and 95% confidence intervals reported. Statistical significance was set at $p < 0.05$.

RESULTS AND DISCUSSION

Sociodemographic and Obstetric Characteristics

The study included 80 postpartum Muslim women in Pidie District. The mean age was 28.4 years (SD = 5.6), with the majority having completed senior high school (52.5%) and being housewives (63.8%). Most participants lived within 5 km of the nearest health facility (57.5%), while the remainder traveled longer distances. Regarding obstetric history, 45% were primiparous, and 20% had experienced at least one abortion in previous pregnancies.

Timing of ANC Initiation

The mean gestational age at first ANC visit was 14.6 weeks (SD = 4.2). Late initiation of ANC, defined as the first visit after 12 weeks of gestation, was observed in 62.5% of participants.

Factors Associated with Late ANC Initiation

Table 1 presents the association between sociodemographic and obstetric factors and late ANC initiation. Distance from home to the health facility and history of abortion were significant predictors. Women living more than 5 km from a health facility were 2.5 times more likely to initiate ANC late (AOR = 2.52; 95% CI: 1.28–4.96; $p = 0.007$). Conversely, women with a history of abortion tended to attend more ANC visits, suggesting prior pregnancy complications increased adherence to maternal care (AOR = 6.78; 95% CI: 1.62–28.45; $p = 0.008$). Other sociodemographic factors such as age, education, occupation, and parity were not significantly associated with late ANC initiation. This indicates that accessibility and prior pregnancy experiences play a more critical role than general demographic characteristics in influencing ANC attendance in Pidie.

Table 1. Factors Associated with Late Initiation of ANC (n = 80)

Variable	Late ANC (n, %)	On-time ANC (n, %)	χ^2 / p -value	AOR (95% CI)
Distance > 5 km	30 (60.0)	12 (40.0)	7.22 / 0.007	2.52 (1.28–4.96)
History of abortion	5 (31.3)	11 (68.8)	7.06 / 0.008	6.78 (1.62–28.45)
Age > 30 years	18 (64.3)	10 (35.7)	0.24 / 0.62	1.14 (0.54–2.40)
Education \leq High school	25 (59.5)	17 (40.5)	0.32 / 0.57	1.21 (0.61–2.39)
Occupation: housewife	30 (58.8)	21 (41.2)	0.11 / 0.74	1.10 (0.55–2.20)
Primipara	22 (61.1)	14 (38.9)	0.08 / 0.78	1.08 (0.54–2.17)

Discussion

The study revealed that late initiation of antenatal care (ANC) remains prevalent among Muslim women in Pidie District, with 62.5% of participants attending their first ANC visit after 12 weeks of gestation. This rate is higher than the national average reported in Indonesia, indicating persistent barriers in rural areas like Pidie.

Distance to health facilities emerged as a significant predictor of late ANC initiation. Women living more than 5 km from a health facility were 2.5 times more likely to delay their first ANC visit. This finding aligns with prior studies in Aceh and Southeast Asia, which demonstrate that geographical accessibility strongly influences maternal healthcare utilization. Rural infrastructure limitations, transportation challenges, and associated costs may discourage women from seeking timely care. Therefore, health policy interventions should consider mobile ANC services, community-based clinics, or transportation support programs to reduce geographic barriers.

History of abortion was another significant factor influencing ANC attendance. Women with previous abortion experiences were more likely to adhere to ANC schedules, suggesting heightened awareness of potential pregnancy complications. This is consistent with the literature, which shows that previous adverse pregnancy outcomes increase maternal vigilance and utilization of prenatal services. Healthcare providers should incorporate risk-based counseling to motivate early and regular ANC attendance, particularly among women with prior obstetric complications.

Interestingly, other sociodemographic variables such as age, education, occupation, and parity were not significantly associated with late ANC initiation in this study. This suggests that in Pidie District, contextual and experiential factors outweigh general demographic characteristics in determining maternal healthcare behaviors. Cultural and religious beliefs, social support, and perceived quality of care may also play subtle roles in influencing ANC attendance, though they were not statistically significant in this study. Future qualitative research could explore these psychosocial dimensions in depth.

The findings highlight the importance of context-specific interventions. Community health education campaigns should focus on the importance of early ANC initiation, especially targeting women living far from health facilities. Moreover, leveraging local religious and community leaders could increase awareness and acceptance of timely ANC, as cultural and religious norms significantly influence health behaviors in Aceh.

In conclusion, improving physical accessibility and providing risk-based counseling based on prior pregnancy experiences are key strategies to enhance ANC utilization.

These interventions can ultimately reduce maternal and neonatal morbidity and mortality in rural districts like Pidie.

CONCLUSION AND RECOMMENDATION

This study demonstrates that late initiation of antenatal care (ANC) remains a significant issue among Muslim women in Pidie District. The primary predictor of delayed ANC initiation is the distance from home to health facilities, while previous pregnancy experiences, particularly a history of abortion, motivate women to attend ANC more regularly. Other demographic factors such as age, education, occupation, and parity were not significantly associated with delayed ANC. These findings highlight the importance of interventions that address physical accessibility and previous obstetric experiences to improve ANC utilization.

Efforts are needed to enhance access to health services through the development of facilities closer to communities or the provision of mobile clinics to reach women living far from health centers. Community-based education programs and pregnancy risk counseling can also increase awareness of the importance of timely ANC initiation. Additionally, involving religious leaders and local community figures can strengthen cultural acceptance of early ANC visits. Further research may explore the role of psychosocial factors, beliefs, and social support in influencing ANC attendance behaviors.

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