

# Factors Associated with Late Antenatal Care Initiation among Pregnant Women Attending a Comprehensive Healthcare Facility in Kandahar Province, Afghanistan

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## Summary

Appropriate and timely care during pregnancy and delivery can improve maternal health. The present study aimed at determining factors associated with late antenatal care (ANC) initiation among pregnant women attending a comprehensive health clinic in Kandahar Province of Afghanistan. Of the 420 pregnant women, 281 (66.9%) presented late (>12 weeks) for their first ANC visit. The multivariable analysis showed that women with lack of knowledge on when to start ANC (adjusted odds ratio [AOR] = 4.82; 95% confidence interval [CI]: 2.63–8.84), not planned last pregnancy (AOR = 3.07; 95% CI: 1.72–5.5), and no ANC visit in the past (AOR = 17.56; 95% CI: 5.89–52.3) were significantly associated with late ANC initiation. Cox and Snell  $R^2$  was 0.2 and Nagelkerke  $R^2$  was 0.4. This study has found high rates of late ANC initiation among pregnant women in the study area. The factors associated with late ANC initiation should be addressed to contribute to the reduction of late ANC initiation, and this in turn can improve maternal and fetal health.

**Key words:** Afghanistan, antenatal care initiation, factors, pregnant women

Afghanistan is among the top ten countries that contribute to more than half of the global maternal deaths.<sup>[1,2]</sup> Appropriate and timely care during pregnancy and delivery can improve maternal health. Antenatal care (ANC) is a specific type of care given to pregnant women from the onset of pregnancy until delivery. It includes the prevention of maternal health risks, safe delivery, and good health of the newborn. The World Health Organization (WHO) recommends a minimum of eight ANC contacts with the first visit during the first trimester of gestational age.<sup>[3]</sup> Likewise, in Afghanistan, the Ministry of Public Health in adherence with the WHO recommends ANC of eight visits with the first occurring in the first trimester.<sup>[2,4]</sup>

About 98% of pregnant women receive ANC at least once in the developed world.<sup>[5]</sup> Of them, 81.9% initiate their ANC at the recommended time.<sup>[6]</sup> However, it is as low as 68% (24% early ANC) in the developing world.<sup>[7]</sup> South Asia has the lowest level (54%) of at least one ANC visit.<sup>[5]</sup> According to Afghanistan Demographic Health Survey 2015 (ADHS, 2015), 56% of women attended ANC visits at least once.<sup>[2,3]</sup>

Different studies in developing countries have identified demographic, socioeconomic, and reproductive factors that are associated with ANC initiation.<sup>[7-10]</sup> Studies conducted in Afghanistan showed low coverage of ANC utilization, and most of them showed late initiation.<sup>[2,11]</sup> To the best of our knowledge, no study has been carried out to determine the factors associated with late ANC initiation in Afghanistan. Therefore, we sought to investigate factors associated with late ANC initiation among pregnant women in Allama Rashad's Comprehensive Health Clinic (CHC) in Kandahar Province. Understanding of these factors will contribute to the reduction of late ANC initiation and this in turn can improve maternal and fetal health.

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This cross-sectional study was conducted among pregnant women attending Allama Rashad's CHC located in Ayano Mena, the central region of Kandahar city, Kandahar, Afghanistan, for ANC services from October to December 2020. This CHC is the only government health facility in the residence that provides primary healthcare services, including ANC services to the population.

We enrolled consenting pregnant women coming for their first ANC visit. Pregnant women, who attended first ANC at another health facility, whose gestational age could not be determined, and those unable to participate due to serious illness or declined to participate were excluded from the study.

We calculated the minimum sample size by using the single population proportion formula with the assumptions of 95% confidence interval (CI), 5% margin of error, the proportion of women starting ANC late in the study area = ( $P$ ) 0.5, and 10% nonresponse rate. Based on this, our final calculated sample size was 420. We consecutively included consenting pregnant women who attended ANC services for their first ANC visit until the determined number of participants were enrolled.

Data were collected from the respondents in a structured questionnaire developed based on relevant literature in a face-to-face interview. Initially, the questionnaire was drafted in English, and later, it was translated into the local language (Pashtu) by experts. Before the study, the questionnaire was pretested on 20 pregnant women attending ANC services in Kandahar Medical Faculty Teaching Hospital with the aim of revising the poorly structured questions. The data were collected by trained female nurses using an exit interview with pregnant women. The data collection process was strictly supervised by principal investigators to ensure consistency.

The collected data were coded and cleaned using Microsoft Excel (2019) and transferred into IBM SPSS version 21 Armonk, NY: IBM Corp for analysis. We used descriptive statistics such as frequency and percentages for categorical variables. Both bivariate and multivariable logistic regression analyses were used to determine factors associated with late ANC initiation. The  $P \leq 0.05$  was considered statistically significant.

The study was approved by the research committee "The committee approved the proposal from ethics point of view," Faculty of Medicine, Kandahar University (Maktob No. 53-28/7/2019). In addition, after explaining the purpose of the study, informed written consent was obtained from all study participants.

We approached 445 pregnant women during their ANC visit. This analysis involves 420 participants (94.3% response rate), of which 281 (66.9%) had initiated their first ANC after first trimester (12 weeks of gestational age). The mean ( $\pm$ standard deviation) age of the study participants was 28 ( $\pm$ 7.1). It was found that 14.3% (60) were from age

group <20, 294 (70%) from 20 to 35, and 66 (15.7%) from age group above 35. About 75% (315) had no formal education, 72 (17.1%) had primary education, 29 (6.9%) had attained secondary education, and only 4 (1%) had higher education. Of the study participants, approximately 89.8% (377) were homemakers while 24 (5.7%) were government employed. Moreover, 65.2% (274) resided in urban dwellings. Around half (50.2%) of the respondents were living with families having more than ten members, while 315 (89%) and 39 (11%) had a monthly household income of 100–150 and >150 USD, respectively.

Of the total respondents, 183 (43.6%) married before the age of 18. Of these, 347 (82.6%) were multigravida and 300 (71.4%) multiparas. Out of 79 (18.8%) study participants who have used contraceptives before this pregnancy, 43 (10.2%) used oral contraceptives and 22 (5.2%) used male condoms. Of all the study participants, 230 (54.8%) had planned their current pregnancies. Among 347 who had delivered in the past, 218 (62.8) had experienced delivery in the hospital. Fifteen (4.3%) had experienced cesarean in their prior delivery. Of all the participants, 18 (5.2%) and 43 (12.4%) faced abortion and stillbirth, respectively, in their last pregnancies.

Of all the respondents, 133 (33.1%, 95% CI: 29.1%–36.7) presented early (<12 weeks) and 281 (66.9%, 95% CI: 64.1%–69.7) presented late (>12 weeks) for their first ANC visit [Figure 1]. Of the total, 308 (73.3%) had experienced ANC visit in the past. Of all the study participants, 118 (28.1) had knowledge on when to start ANC. Of all the respondents, 278 (66.2%) believed that ANC is important for the health of both mother and child.

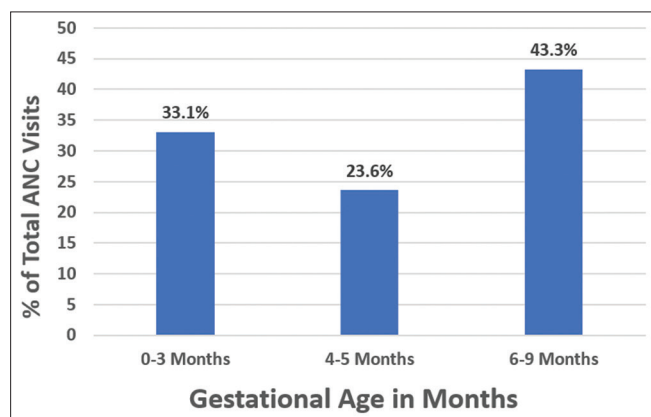
Variables that were significantly associated with late ANC initiation among pregnant women in the bivariate analysis included respondent's age, place of residence, education level of women and husband, number of household members, level of wealth, knowledge on when to start ANC, pregnancy intention, and previous experience of ANC visit. Variables with  $P < 0.25$  were retained in the multivariable logistic regression. The factors that remained significantly associated with late ANC initiation in multivariable analysis were no knowledge on when to start ANC adjusted odds ratio (AOR) = 4.82 (95% CI: 2.63–8.84), unintended pregnancy AOR = 3.07 (95% CI: 1.72–5.5), and no ANC visit in the past AOR = 17.56 (95% CI: 5.89–52.3) [Table 1]. Cox and Snell  $R^2$  was 0.2 and Nagelkerke  $R^2$  was 0.4.

The rate of late ANC initiation in the present study is comparable with many studies from other developing countries where late ANC rates exceeded >50%.<sup>[5,11]</sup> These trends are generally reflective of many developing countries, where a majority of pregnant women initiate their first ANC visit lately. However, late ANC initiation rates have shown to be better in American and European cohorts, probably due to better awareness and other sociodemographic differences in these settings.<sup>[5,6]</sup>

**Table 1: Factors associated with late antenatal care initiation among pregnant women attending a comprehensive healthcare facility in Kandahar province**

Independent variable	Categories	Crude odds ratio (95% CI)	P	Adjusted odds ratio (95% CI)	P
Respondent's age	<20	1	0.023	-	-
	≥20	1.71 (1.07-2.74)		-	
Women education	Educated	1	<0.001	-	-
	Uneducated	2.38 (1.51-3.77)		-	
Place of residency	Urban	1	<0.001	-	-
	Rural	2.55 (1.59-4.08)		-	
Husband education	Educated	1	<0.001	-	-
	Uneducated	2.14 (1.42-3.24)		-	
Family members	1-10	1	0.008	-	-
	>10	1.74 (1.15-2.63)		-	
Household income	5000-10,000	3.04 (1.54-5.99)	0.001	-	-
	>10,000	1		-	
Patient knowledge when to start ANC	Yes	1	<0.001	1	<0.001
	No	5.19 (3.29-8.20)		4.82 (2.63-8.84)	
Pregnancy intention	Planned	1	<0.001	1	<0.001
	Unplanned	2.33 (1.52-3.58)		3.07 (1.72-5.5)	
ANC visit in the past	Yes	1	<0.001	1	<0.001
	No	13.42 (5.72-31.5)		17.56 (5.89-52.3)	

CI: Confidence interval, ANC: Antenatal care



**Figure 1:** Timing for first antenatal care attendance among pregnant women at Allama Rashad's comprehensive health clinic in Kandahar province.

In this study, it was revealed that a substantial number (43.6%) of women married before the age of eighteen. In Afghanistan, however, there are laws that prohibit early marriage (before the age of 18). It is believed that early marriage can have adverse effects in terms maternal health, child health, educational advances, and women empowerment.

In our study, it was found that majority (75%, 315) of the study participants had no formal education which is also consistent with the findings of ADHS (2015) that reported a 29.81% of female literacy rate.<sup>[4]</sup> This may be due to decades of conflict in the country that has particularly affected south of the country.

In this study, lack of knowledge on when to start ANC was common (71.9%) in the study participants. Furthermore, pregnant women with a lack of knowledge on when to start

were 4.82 times more likely to initiate their ANC lately than their counterparts. Since educational level was not associated with late ANC initiation, all pregnant women including educated ones should receive education on the timing of ANC initiation during clinic visits. It is also imperative that a massive public health program aimed at improving awareness on the timing of ANC visit should be undertaken in the light of low health literacy among general population in Kandahar province.

In this study, we observed that women with unplanned pregnancies were about three times more likely to visit late for ANC than those in which pregnancy was planned (AOR = 3.07; 95% CI: 1.72–5.5). This finding is consistent with research findings from Ethiopia, Bangladesh.<sup>[8,10]</sup> This late ANC initiation in unplanned pregnancies might be due to delayed diagnose of pregnancy or poor birth spacing.

The third important finding in this study is the role of previous ANC visits in prior pregnancies in which pregnant women with a history of not visiting ANC in previous pregnancies were about 18 times more likely to initiate their ANC visits lately than their counterparts (AOR = 17.56; 95% CI: 5.89–52.3). According to the ADHS (2015), 56% of women attended ANC visits at least once.<sup>[2]</sup> Reasons for not visiting for ANC services are multifactorial and are contributed by individual and health system level-related factors. Hence, optimization of timely ANC initiation would require multimodal approaches that are culturally appropriate in Afghanistan.

This study found crucial factors for late ANC initiation in pregnant women. The findings of this study, however, should be considered in light of its limitations. The cross-sectional nature of the study limits the temporal relationship between

variables. Specifically, we suggest further investigation of health system-related factors associated with late ANC initiation among pregnant women. Furthermore, the study included pregnant women from a single public health facility that merely limits its generalizability.

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### Conflicts of interest

There are no conflicts of interest.

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