



Factors Influencing Antenatal Care Utilization in Badghis, Kunar, Nuristan, and Uruzgan Provinces: Secondary Analysis of the Afghanistan Demographic and Health Survey 2015

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| DOI: xxxxxx

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Received: 05/Jan/2025

Accepted: 09/Feb/2025

Published: 21/Dec/2025

Abstract

Background: Antenatal care (ANC) is critical for ensuring the optimal health of both mother and fetus. It provides an opportunity to identify and respond to pregnancy complications. However, ANC utilization remains low among pregnant women in Badghis, Kunar, Nuristan, and Uruzgan provinces. This study aimed to investigate the factors associated with ANC utilization among pregnant women residing in these four provinces of Afghanistan

Methods: Data were collected from 1,305 women using the Afghanistan Demographic and Health Survey (DHS) – 2015 dataset, downloaded with approval from Inner City Fund (ICF). Data analysis was performed entirely using IBM SPSS Statistics (Version 20). Descriptive, bivariate, and multivariate analyses were conducted. The significance level was set at 0.05.

Results: 93.65% of women were uneducated. 93.67% did not read print media, 84.19% did not listen to the radio, and 90.64% did not watch television. Overall, 19.25% of pregnant women utilized ANC services in Badghis, Kunar, Nuristan, and Uruzgan provinces. Our analysis revealed that province of residence, woman's education level, listening to the radio, and watching television were factors that determined the utilization of ANC services.

Conclusion: This study found alarmingly low ANC utilization among pregnant women in Badghis, Kunar, Nuristan, and Uruzgan provinces. Significant inequalities were observed, with lower utilization among women in rural areas, low-income households, those with limited education, and low media exposure. Improving healthcare quality, raising ANC awareness, and strengthening community engagement are essential to increase ANC utilization.

Keywords: Afghanistan, ANC, Determinants, Women, Pregnancy

Introduction

Antenatal care (ANC) is a crucial component of maternal healthcare for protection of the health of both mother and the fetus that provides valued opportunity to identify and address potential pregnancy complications [1]. ANC encompasses preventive, health promotional, and protective healthcare services [2]. Key aspects of ANC



include nutritional counseling, guidance on lifestyle and the recognition of danger signs during pregnancy, postpartum family planning counseling, and the promotion of early breastfeeding initiation [3-6].

During ANC visits, healthcare providers assess pregnant women for risk factors, existing diseases and potential pregnancy complications. They also monitor fetal growth and development which allows timely provision of intervention and support [6]. ANC plays a crucial role in reduction of complications during pregnancy, childbirth and the post-partum period, as well as improving neonatal outcomes. The World Health Organization (WHO) recommends at least eight ANC contacts during pregnancy, with the first visit ideally occurring within the first four weeks of gestation [6].

ANC utilization has increased in the past decade, significant difference exists across regions, provinces, and different population groups. Only 17.8% of pregnant women in Afghanistan has received the full course of ANC in the 2017 [7].

About 94% of maternal deaths occur in developing countries, most of which are preventable. Access to quality healthcare during pregnancy, childbirth, and postnatal periods can significantly reduce maternal mortality. Globally, maternal mortality was reduced by 38.0% between 2000 and 2017. In Afghanistan, maternal mortality rate (MMR) was reduced by 56.0% between 2000 and 2017, from 1450 to 638 maternal deaths per 100,000 live births. However, Afghanistan still remains among the fifteen countries with the highest MMR [8].

If low ANC utilization in the remote provinces persist, it will have severe negative consequences for the health of both mothers and newborns; explicitly pregnancy complications will remain undetected, leading to increased risks for both mother and child, anemia prevalence will likely rise, maternal nutritional status will depreciate, and crucially, mothers will have limited awareness of pregnancy-related risks and complications. These factors will ultimately contribute to high levels of maternal, newborn, and infant mortality rates. This study aims to identify the factors that determine ANC utilization among pregnant women in Badghis, Kunar, Nuristan, and Uruzgan provinces.

Materials and Methods

Study Design

The Afghanistan Demographic and Health Survey (AfDHS) – 2015 was a cross-sectional survey conducted across 34 provinces of Afghanistan. It collected information about residence, age, education, occupation, economic status, birth history, child mortality, antenatal, delivery, postnatal care, and media exposure.

Sample size and Sampling Technique

The Afghanistan Demographic and Health Survey (DHS) – 2015 employed a stratified two-stage sampling design. In the first stage, 950 enumeration areas (EAs) were selected from a total of 25,974 EAs nationwide. This selection was stratified by urban and rural areas, with 260 urban EAs and 690 rural EAs selected. In the second stage, probability proportional to size (PPS) systematic sampling was used to select 27 households within each selected EA.

For this specific study on ANC utilization in Badghis, Kunar, Nuristan, and Uruzgan provinces, data from 1,304 women were extracted from the AfDHS dataset.

The AfDHS dataset was downloaded with approval from Inner City Fund (ICF) at www.dhsprogram.com. Informed consent was obtained during the original DHS data collection. As the data is anonymized and de-identified, additional approval for this secondary analysis was received from the Human Ethics Committee of Herat University (241202-13).

Statistical Analysis

IBM SPSS Statistics (Version 20) was used for statistical analysis. Descriptive analysis was performed to describe the characteristics of the sample.

Bivariate analysis was conducted to examine the prevalence of ANC services by various factors, including socioeconomic characteristics, demographic factors, and media exposure, and to explore their relationship. The Chi-square test was used to assess the statistical significance of the association between categorical variables. Logistic regression analysis was conducted to determine the independent association between socioeconomic, demographic, and media exposure factors and ANC utilization. Results were presented as odds ratios (ORs) with 95% confidence intervals. A significance level was set at 0.05 for all analyses.

Results

The table -1 shows that 94.57% of the women who were interviewed were living in rural area. Over half (54.52%) of the population fell into the poor category. The majority of women (71.26%) had reported having their third or higher birth. Less than half (45.78%) of the women were aged between 25 and 34 years. Most women (93.65%) were uneducated, and slightly more than two-thirds (69.65%) of husbands of the pregnant women were uneducated. Most women (85.95%) were unemployed. Less than half of their husbands (43.83%) were self-employed, and most women (90.80%) did not watch television.

Table – 1: Sample characteristics

Variables	Women Included in Analysis	
	Numbers	Percentage
Total	1305	100%
Province		
Kunar	422	32.34%
Nuristan	184	14.10%
Uruzgan	200	15.33%
Badghis	499	38.24%
Residence		
Rural	1234	94.57%
Urban	71	5.43%
Wealth Index		
Poor	711	54.52%
Middle	375	28.73%
Rich	219	16.75%
Current Age		
15 – 24 years	404	30.95%
25 – 34 years	597	45.78%
35 – 49 years	304	23.28%
Birth Order		
First live birth	170	13.03%
Second live birth	205	15.71%
Third and more live births	930	71.26%
Education		
Uneducated	1223	93.65%

Primary School	58	4.47%
Secondary School	21	1.63%
Higher Educations	3	0.25%
Husband Education		
Uneducated	903	69.20%
Primary School	91	6.97%
Secondary School	200	15.33%
Higher Educations	69	5.29%
Missing	42	3.22%
Occupation		
Not Working	1122	85.95%
Self - employed/Agriculture	121	9.27%
Unskilled Manual	33	2.51%
Professional/Managerial/T echnical	20	1.53%
Skilled Manual	9	0.71%
Husband's Occupation		
Self-employed/ Agriculture	572	43.83%
Professional/Managerial /Technical	323	24.75%
Unskilled Manual	208	15.94%
Skilled Manual	98	7.51%
Service/Sale	90	6.90%
Clerical	14	1.07%
Read print media		
Not reading	1288	98.67%
Reading	17	1.18%
Listen to Radio		
Not at all	1099	84.19%
Less than once a week	98	7.50%
Once a week	108	8.29%
Watching TV		
Not at all	1185	90.80%
Less than once a week	42	3.22%
Once a week	78	5.98%

Table – 2 shows the ANC utilization by sociodemographic factors and media exposure. Totally 19.25% of the pregnant women utilized ANC across all four provinces.

Slightly higher than one-fourth of pregnant women in urban areas (26.76%) utilized ANC services, compared to 18.72% in rural areas. 22.03% of women aged 15-24 utilized ANC services. 22.94% of women during their first pregnancy utilized ANC services.

The 30.43% of women whose husbands had higher education utilized ANC services, compared to 17.83% of women whose husbands were uneducated. 44.44% of the women who were skilled manual workers utilized ANC services. 25.08% of the women whose husbands were technical, managerial, or professional workers utilized ANC services.

Table – 2: ANC utilization by sociodemographic factors and media exposure

Variables	Utilized ANC		Not utilized ANC	
	Numbers	Percentage	Numbers	Percentage
Total	251	19.25 %	1053	80.75 %
Province *				
Kunar	70	16.59%	352	83.41%
Nuristan	20	10.87%	164	89.13%
Uruzgan	39	19.50%	161	80.50%
Badghis	122	24.45%	377	75.55%
Residence				
Rural	231	18.72%	1003	81.28%
Urban	19	26.76%	52	73.24%
Wealth Index				
Poor	131	18.42%	580	81.58%
Middle	75	20.00%	300	80.00%
Rich	44	20.09%	175	79.91%
Age				
15 – 24 years	89	22.03%	315	77.97%
25 – 34 years	102	17.09%	495	82.91%
35 – 49 years	59	19.41%	245	80.59%
Birth Order				
First live birth	39	22.94%	131	77.06%
Second live birth	45	21.95%	160	78.05%
Third and more live births	167	17.96%	763	82.04%
Education *				
Uneducated	214	17.50%	1009	82.50%
Primary School	26	44.83%	32	55.17%
Secondary School	8	38.10%	13	61.90%
Higher Educations	3	100.00%	0	0.00%
Husband Education *				
Uneducated	161	17.83%	742	82.17%
Primary School	21	23.08%	70	76.92%
Secondary School	35	17.50%	165	82.50%

Higher Educations	21	30.43%	48	69.57%
Occupation *				
Not Working	224	19.96%	898	80.04%
Self-employed/Agriculture	13	10.74%	108	89.26%
Professional/Managerial/Technical	5	15.15%	28	84.85%
Unskilled Manual	5	25.00%	15	75.00%
Skilled Manual	4	44.44%	5	55.56%
Husband's Occupation *				
Self-employed/Agriculture	110	19.23%	462	80.77%
Professional/Managerial/Technical	81	25.08%	242	74.92%
Unskilled Manual	25	12.02%	183	87.98%
Service/Sale	18	18.37%	80	81.63%
Skilled Manual	14	15.56%	76	84.44%
Clerical	2	14.29%	12	85.71%
Read print media *				
Do not read	242	18.79%	1046	81.21%
Read	7	41.18%	10	58.82%
Listen to Radio				
Not at all	216	19.65%	883	80.35%
Less than once a week	17	17.35%	81	82.65%
Once a week	18	16.67%	90	83.33%
Watching TV *				
Not at all	206	17.38%	979	82.62%
Less than once a week	15	35.71%	27	64.29%
Once a week	29	37.18%	49	62.82%

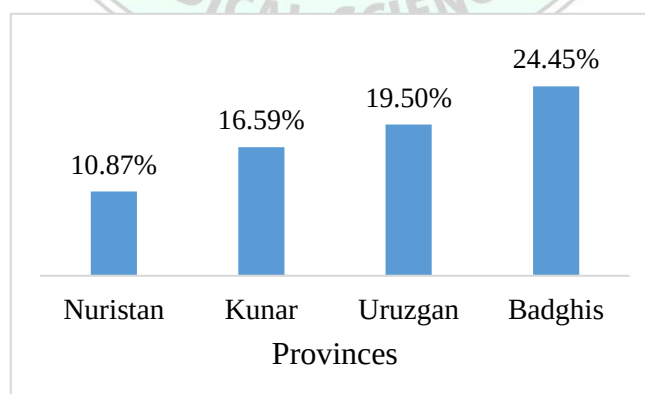


Figure – 1: Percentage of pregnant women utilized ANC by province.

Figure one shows that about one-fourth (24.45%) of pregnant women utilized ANC in Badghis province, followed by women in Uruzgan province (19.50%), Kunar province (16.59%), and the least utilized ANC in Nuristan province (10.87%).

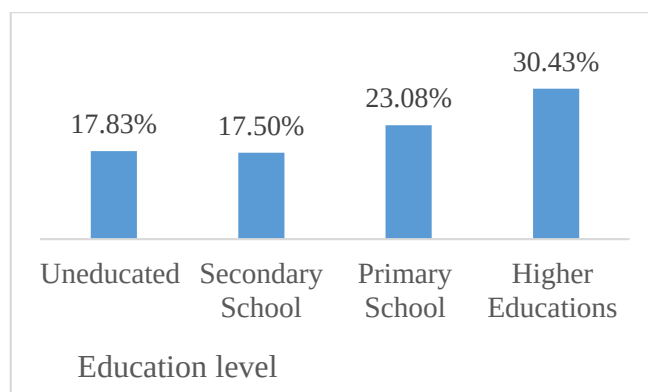


Figure – 2: Percentage of pregnant women utilized ANC by education level.

Figure two shows that all women with higher education (100.00%) utilized ANC services, followed by women has completed primary school (44.83%) and only 17.50% of the uneducated women.

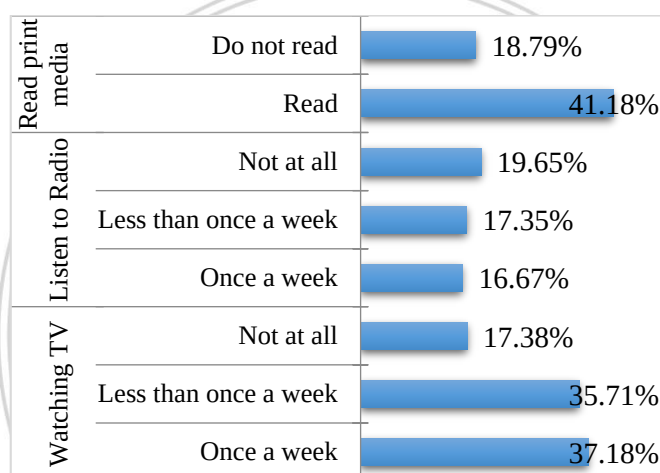


Figure – 3: percentage of pregnant women utilized ANC by media exposure

Figure three shows that 41.18% of the pregnant women who read materials, 19.65% of those who did not listen to radio, and 37.18% of those who watched television once a week utilized ANC services respectively.

Table – 3 presents findings from the logistic regression analysis and shows that province, education level, listening to radio, and watching television were significant predictors of ANC utilization. Women in Uruzgan were 2.85 times more likely (OR: 2.85; 95% CI: 1.59–5.09) to utilize ANC services. Women in Badghis were 3.49 times more likely (OR: 3.49; 95% CI: 1.95–6.23) to utilize ANC services. Women with primary education were 3.03 times more likely (OR: 3.03; 95% CI: 1.62–5.64) to utilize ANC services. Women who watched TV at least once a week were 2.47 times more likely (OR: 2.47; 95% CI: 1.34–4.56), while women who listened to the radio less than once a week were 0.43 times less likely (OR: 0.43; 95% CI: 0.21–0.78) to utilize ANC services.

Variables	Exp.(B)	95% C. I. f or EXP(B)		p-value
		Lower	Upper	
Province (Reference = Kunar)				
Uruzgan	2.85	1.59	5.09	<0.0001
Badghis	3.49	1.95	6.23	<0.0001
Education Level (Reference = No Education)				
Primary Educations	3.03	1.63	5.64	<0.0001
Listening to Radio (Reference = Not listening)				
Listening less than once a week	.43	.22	.87	<.05
Listening once a week	.40	.21	.78	<.01
Watching TV (Reference = Not watching)				
Watching less than once a week	2.87	1.22	6.70	<.01
Watching once a week	2.47	1.39	4.56	<.01

Table – 3: Logistic regression results of factors influenced utilization of ANC

Discussion

This study found that overall Antenatal Care (ANC) utilization rate was alarmingly low, with only 19.25% of pregnant women utilized ANC services. The findings highlight significant differences in utilization among pregnant women across four provinces in Afghanistan. It shows that the majority of women surveyed were from rural areas (94.57%), were uneducated (93.65%), were unemployed (85.95%), did not watch television (90.80%), and 54.52% women lived in poverty. These finds are consistent with findings of other studies [7].

Utilization was higher among women in urban areas compared to those in rural areas (26.76% vs. 18.72%), among women with higher education compared to uneducated women (100% vs. 17.50%), among wives of men with higher education compared to those with uneducated husbands (30.43% vs. 17.83%), among skilled manual workers compared to self-employed women (44.44% vs. 10.74%), among women who read print media compared to those who did not (41.18% vs. 18.79%), and among women who watched television compared to those who did not (35.71% vs. 17.38%). Similarly, utilization was slightly higher among rich women compared to poor women (20.09% vs. 18.42%). However, bivariate analysis found that only province. These findings are consistent with other studies that found similar associations with ANC utilization [9-13].

Women aged 15–24 were more likely to utilize ANC services compared to those aged 25–34 (22.03% vs. 17.09%). Similarly, women in their first pregnancy were more likely to utilize ANC services compared to those with three or more births (22.94% vs. 17.96%). This finding is consistent with previous studies⁽¹¹⁻¹²⁾ which reported lower ANC utilization among older women and during subsequent births among women. This may be attributed to factors such as increased health awareness and access to health information among



younger generations, potentially leading to a greater perceived need for ANC services. Conversely, older women may perceive ANC as less necessary, possibly due to having experienced previous pregnancies without major complications [11].

ANC utilization was higher among women who had higher education and whose husbands also had higher education. This finding is consistent with other studies [10-12]. That have shown a strong association between the education levels of women and their husbands and the utilization of ANC services [11-13]. It is widely acknowledged that education plays a crucial role in improving health outcomes. Education facilitates increased awareness of health-related issues and empowers both men and women to make informed decisions regarding their own and their family's health.

Women who were skilled manual workers and those whose husbands were managers, professionals, or technical workers were more likely to utilize ANC. These findings are consistent with other study¹² that have shown an association between occupation and ANC utilization. However, other studies have found that certain occupations may negatively affect ANC service utilization [10].

Women who read print media and watched television were more likely to utilize ANC. These findings are consistent with other research⁸ that has demonstrated a positive association between access to media, including television and print media, and ANC utilization. Media plays a crucial role in development, improving knowledge, and increasing awareness, which can significantly influence health-seeking behaviors.

However, the finding that women who listened to radio were less likely to utilize ANC services was unexpected. This may be due to several factors, such as exposure to other sources of information (television, internet, print media), receiving health messages from healthcare providers, or the influence of other confounding variables. Furthermore, the multivariate logistic regression analysis found a statistically significant association between listening to radio and ANC utilization in this study.

Logistic regression analysis demonstrated that province and education levels were strongly associated with ANC utilization ($p < 0.0001$), and watching television was a significant predictor of ANC utilization ($p < 0.001$). This finding is consistent with findings from other studies [12-15] that have shown an association between these factors and ANC utilization. However, listening to the radio was a significant deterrent to ANC utilization, which is inconsistent with other studies that found listening to the radio and exposure to other types of media as predictors [15].

Although this survey collected information about live births occurring within the five years preceding the data collection, which may have introduced recall bias, the analysis focuses on ANC utilization during the most recent birth to minimize the impact of recall bias.

Secondly, this study was conducted in four provinces of Afghanistan and may not be generalizable to the entire country.



Recommendations

Public health managers and policymakers should adapt strategies focused on the factors that prevent women from utilizing ANC services, including improving access to education, protecting the poor, and expanding attention to all age groups, especially women in rural areas. Moreover, improving infrastructure in rural areas and enhancing the quality of care provided at health facilities are crucial for strengthening healthcare service delivery. Further, community-based health education programs should be conducted, utilizing local media channels to disseminate health messages and promoting the use of health information materials to increase health literacy among families and the community regarding the importance of ANC. Actively involving communities in identifying and addressing barriers to ANC utilization by implementing community-based participatory approaches is also essential.

Conclusion

This study found that ANC utilization among pregnant women in Badghis, Kunar, Nuristan, and Uruzgan provinces was alarmingly low. Significant inequalities persist across different population groups, with lower ANC utilization observed among women residing in rural areas, from low-income households, with limited education, and with low media exposure. Enhancing the quality of healthcare services, increasing awareness about the importance of ANC, and strengthening community engagement are crucial steps in increasing the utilization of ANC services.

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