

# Assessment of Antenatal care and Factors Associated with its Decreased Compliance in a Tertiary Care Hospital

Tahreem Sehar<sup>1</sup>, Majida Zafar<sup>2</sup>, Sabeen Aslam<sup>3</sup>, Sobia Luqman<sup>4</sup>, Narjis Bano<sup>5</sup>, Mujahid Raza<sup>6</sup>,

Muhammad Umair<sup>7</sup>

<sup>1,5,7</sup>Medical Officer, Department of Obstetrics & Gynecology, MCH Center, PIMS, Islamabad

<sup>2,4</sup>Assistant Professor, Department of Obstetrics & Gynecology, MCH Center, PIMS, Islamabad

<sup>3</sup>Assistant Professor, Department of Obstetrics & Gynecology, Federal Government Polyclinic, Islamabad

<sup>6</sup>Associate Professor, Department of Radiology, Pakistan Institute of Medical Sciences, Islamabad

**Correspondence:** Dr. Tahreem Sehar

Medical Officer

Department of Obstetrics & Gynecology

MCH Center, PIMS, Islamabad

Email: lilyflora260@yahoo.com

## Abstract

**Objective:** To determine the frequency of antenatal care (number of visits) in tertiary care hospital and to find factors related to decreased antenatal care.

**Methodology:** This cross sectional study was conducted in the department of Obstetrics and Gynecology, MCH Center Unit I, Pakistan Institute of Medical Sciences, Islamabad. During January 2020 to July 2020. A total of 196 patients were selected who presented with confirm pregnancy. After baseline investigation, antenatal visits and risk factors categorized as environmental, predisposing, enabling and need factors were recorded to measure the status and standard of antenatal care. Data was entered and analyzed in SPSS version 22.0.

The study factors were associated with ANC care in terms of good antenatal care and decreased antenatal care. A p-value <0.05 were considered as significant.

**Results:** A total of 196 patients presenting with pregnancy were included in the study. Average age of the patients was 28.04 Years + 5.99 SD with range 20-45 years. The antenatal care was found good in 95 (48.5%) of study women.

**Conclusion:** Antenatal care facility was low in this part of the world which can be improved by improving maternal education, household index and providing facilities at door step.

**Keywords:** Live birth, pregnancy, skilled delivery, risk factors, antenatal care.

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## Introduction

Maternal mortality is still very high in many parts of the world, especially in South Asia.<sup>1</sup> One of the reasons is lack of antenatal care (ANC) access and services. Globally, it is estimated that 342900 (uncertainty interval 302100 - 394300) maternal deaths occurred in 2008.<sup>1</sup> Progress towards achievement of sustainable development goal (SDG) 5 has been slow with only 23 countries reported to be on track to achieve a 75% decrease in maternal mortality rate (MMR) by 2025. Skilled delivery care is considered a crucial function

within the health care system for saving the lives of mothers and newborns. Increasing the coverage of skilled delivery care and ANC depends upon improved training and monitoring of health care providers and greater family participation in ANC visits.<sup>2</sup>

ANC visits constitute one of the few times in which women in many resource poor settings seek care for their own health and represents an important opportunity to identify and treat problems such as anemia and infections and for prevention services like mother to child transmission of HIV (PMTCT), help women best prepare for birth, as well as inform them

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about pregnancy related complications and the advantages of skilled delivery care with at least four ANC visits being recommended for a normal pregnancy.<sup>3</sup>

Previous evidence from Africa reveals value of ANC visits, where in a rural district hospital setting in Malawi, 90% of mothers attending antenatal services accepted HIV voluntary counselling and for testing (VCT) of whom approximately one quarter were HIV positive and enrolled into the PMTCT programme. Women who attend ANC are more likely to seek skilled delivery care.

Nevertheless, 20% of all women who attend ANC four times or more in sub Saharan Africa, do not seek skilled delivery attendance.<sup>4</sup> Women's performance for a home birth and lack of planning for delivery are reinforced by the failure of health care providers to consistently communicate the importance of skilled delivery and immediate postpartum care for all women during routine antenatal visits.<sup>5</sup> Low up take of Antenatal care(ANC) is an important determinant of high maternal mortality rate in developing countries and is one of the basic components of maternal care on which the life of mothers and babies depend.<sup>6</sup>

According to WHO, 53600 women die every year in the world from causes relating to pregnancy, childbirth or postpartum. Ninety nine percent of these deaths occur in the developing countries. The majority of these deaths could be avoided if women had access to quality medical care during pregnancy, childbirth and postpartum. ANC services help pregnant women by identifying complications associated with pregnancy or disease that might adversely affect the pregnancy.<sup>7</sup> The ANC coverage in the Punjab province of Pakistan is only 53% and there is inequity in provision of ANC services to rural population as depicted by some studies which is 50% in comparison to 71% of the urban women.<sup>8</sup>

Antenatal care (number of visits) is an important maternal health indicator. Pakistan is facing several problems in maternal health sector due to lack of resources. Despite of all these issues, the Government of Pakistan is improving maternal health 6 services by ensuring antenatal care at grass root level. The present study was conceived to contribute knowledge regarding development of guidelines related to maternal health in Pakistan. The study aimed to determine the frequency of antenatal care (number of visits) in tertiary care

hospital and factors related to decreased antenatal care.

## Methodology

This was a cross sectional study conducted in the Department of Obstetrics and Gynecology, FGPC Islamabad for a period of 6 months, from January and July 2020. Sample size was calculated using WHO calculator with a confidence level of 95%, alpha error of 5%, anticipated population proportion of 85%<sup>9</sup>, and an absolute precision of 5%. The total study sample was 196 women presenting in the ANC clinic. Women aged 20 to 45 years who had confirm pregnancy were selected using non-probability based consecutive sampling. Patients having any chronic condition like diabetes mellitus, heart disease, renal disease, High blood pressure (>140/90mmHg) and BMI < 18.0 and epilepsy and those having severe anemia (Hb < 10) were all excluded.

The study definitions included as good antenatal Care; at least four visits during pregnancy (recommended by World Health Organization)<sup>10</sup> while decreased antenatal care; total antenatal visits < 4. Risk factors associated with lower frequency of antenatal care visits were measured categorically as environmental factors, predisposing factors, enabling factors and need factors<sup>9</sup>. Environmental factors included frequency of climate (hot, cold) and types of residence (rural, urban), predisposing factors were measured as frequency of maternal age at her last birth day (15-19 or 35-49), number of previous pregnancies (2+), pregnancy outcome (live birth), number of children (5 or more), maternal marital status (divorced, married), polygamy status (husband has one wife). Enabling factors included household wealth index and BMI < 18 were considered as significant.

The study was conducted after taking ethical approval from ethical review board of Federal Government Polyclinic Hospital, Islamabad. A written informed consent was taken from all patients. After selection of participants a brief history including medical, psychological and obstetric history were taken. Pregnancy was confirmed and expected date of delivery was measured. Complete general and obstetrical examination including blood pressure, fetal growth and movements were done. Screening test for haemoglobin, syphilis, HIV, Proteinuria, Blood/Rh group and bacteriuria were performed. Women were provided with preventive measures including tetanus injection. Iron and folate tablets were prescribed.

Number of antenatal visits were recorded. At least four antenatal visits were considered antenatal care. While the patients were asked about risk factors categorized as environmental, predisposing, enabling and need factors.<sup>10</sup> Factors were measured through pretested questionnaire. Environmental factors were measured as frequency of climate and types of residence. Predisposing factors were measured as frequency of maternal age at her last birth day, number of previous pregnancies, pregnancy outcome, and number of children, maternal marital status, and polygamy status. Enabling factors were measured as frequency of household wealth index. Need factors were measured as frequency of desire for last pregnancy and pregnancy complication.

Data was entered and analyzed in SPSS version 22.0. Quantitative variables like mother age, gestational age and parity were measured as mean and standard deviation. Qualitative variables like antenatal visits, level of antenatal care, environmental factors (climate, educational status, types of residence), predisposing factors (maternal age at her last birth day, number of previous pregnancies, pregnancy outcome, number of children, maternal marital status, polygamy status), enabling factors (household wealth index) and need factors (desire for last pregnancy, complication) were measured as frequency and percentages. The study factors were associated with ANC care in terms of good antenatal care and decreased antenatal care. A p-value <0.05 were considered as significant.

## Results

A total of 196 patients presenting with pregnancy to the antenatal care unit of Federal Government Polyclinic Hospital Islamabad, were included in the study. There were 55 (28.06%) were primipara and 141 (71.94%) were multipara. Average age of the patients was 28.04 ± 5.99 years. There were 74 (37.8%) patients with age less than 25 years, 66 (33.7%) patients were in the age range of 26-30 years, 27 (13.8%) were of age range 31-35 years and 29 (14.8%) presented at age more than 35 years of age. (Figure I)

The antenatal care was found good in 95 (48.5%) of study women. The environmental risk factor shows that majority of the women were from neutral climate with urban residence. Predisposing factor shows that younger age had more antenatal care visits, women with more than one pregnancy, live birth and women having 1-2 children having secondary education availed the antenatal care facilities. Majority of the women had

low to middle income while 92.9% women had a desire to be pregnant. (Table I)

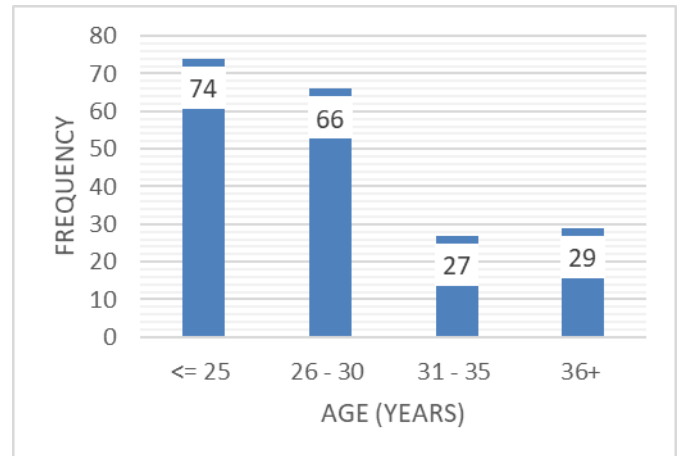


Figure I. Age Wise Distribution of Patients (n=196)

Table I: Antenatal care and common risk factors (n=196)

	No of cases	%age
<b>Antenatal care</b>		
Good	95	48.5%
Decreased	101	51.5%
<b>Climate</b>		
Hot	30	15.3%
Cold	32	16.3%
Neutral	134	68.4%
<b>Residence</b>		
Urban	161	82.1%
Rural	35	17.9%
<b>Age (years)</b>		
Up to 25	74	37.8%
26 to 30	66	33.7%
31 to 35	27	13.8%
36 or above	29	14.8%
<b>Previous pregnancy</b>		
One	55	28.1%
More than one	141	71.9%
<b>Pregnancy outcome</b>		
Live birth	141	71.9%
Other	55	28.1%
<b>Number of children</b>		
1-2	140	71.4%
3-4	43	21.9%
5 or above	13	6.6%
<b>Maternal education</b>		
No education	5	2.5%
Primary education	26	13.3%
Secondary	165	84.1%
<b>Socioeconomic status (income per month)</b>		
< 25000	4	2.0%
25000 to 50000	49	25.0%
> 50000	143	73.0%

Age wise distribution of antenatal care shows that proportion wise antenatal care was observed a little bit higher in lower age group and decrease as the age increase but this difference was insignificant (p-value

0.279). Antenatal care was stratified over parity, maternal education and gestational age which shows that antenatal care was good in women with multipara, educated and having more than 25 weeks of gestation age. It may be the case that after 25 weeks of gestation, the criteria of more than 4 visit was fulfilled better than those less than 25 weeks of gestation (p-value 0.001). (Table II)

**Table II: Factors associated with antenatal care (n=196)**

	Antenatal care		P-value
	Good care (n=95)	Decreased care (n=101)	
<b>Age (years)</b>			
20-25	42 (44.2%)	32 (31.7%)	0.27
26-30	30 (31.5%)	36 (35.6%)	
31-35	10 (10.5%)	17 (16.8%)	
36 or above	13 (13.6%)	16 (15.8%)	
<b>Parity</b>			
Primipara	24 (25.2%)	31 (30.7%)	0.39
Multi para	71 (74.7%)	70 (69.3%)	
<b>Maternal education</b>			
No education	2 (2.1%)	3 (2.9%)	0.91
Primary education	13 (13.6%)	13 (12.8%)	
Secondary	80 (84.2%)	85 (84.3)	
<b>Gestational age (weeks)</b>			
Up to 25	42 (44.2%)	68 (67.3%)	0.001
26 or above	53 (55.7%)	33 (32.7%)	

## Discussion

This study found out that a little less than one half of the women had good antenatal care ( $\geq 4$  visits) while the rest of them had decreased antenatal care ( $< 4$  visits). The World Health Organization recommends that antenatal care is an essential link in household-to-hospital continuum of care which reduces maternal mortality and morbidity. It is a well-known and proven fact that care seeking during pregnancy is vital for maternal and newborn health as pregnancy is a crucial time to promote healthy behaviors through provision of certain preventive and health promotion services.<sup>11</sup> ANC detects and treats pregnancy related or inter-current illnesses (malaria, anaemia and syphilis) which have huge impact on maternal and neonatal health. Antenatal care is an important indicator of access and use of health care during pregnancy. Currently, 81% of women worldwide have ANC coverage of at least one visit depicted by World Health Statistics 2018, and in industrialized countries, more than 95% of pregnant women have access to ANC.<sup>12,13</sup> In developing countries coverage of at least one ANC visit is relatively high at 69% in Sub Saharan Africa, compared to 54%

in Asia; however, quality of services along with coverage is essential to maximize the impact. A previous local study revealed that only two thirds of the women opt for ANC while one half of deliveries occur without assistance of skilled healthcare provider and less than one half seek postpartum and newborn care.<sup>14</sup> O'Dair MA and colleagues revealed from their systematic review that south Asia has the highest rates of neonatal and maternal mortality and improved and better ANC has protective role in tailoring these rates compared to those women who do not opt for ANC visits.<sup>15</sup> Khan A and colleagues reported that despite having high rates of overall ANC coverage, the rates of effective coverage was very low in their study women. They witnessed distance from healthcare facility, family income, maternal education, multi-parity were independent factors associated with lower effective coverage of ANC.<sup>16</sup> Another very recent study from India witnessed that along with number of visits the quality of ANC matters most. They concluded that high quality ANC is related to protective response in terms of low birth weight and universal health coverage.<sup>17</sup>

In the present study 82.1% were resident of urban areas and 17.9% from rural areas. This is because our study is an Urban hospital based study. In contrast, study conducted by Padam Singh et al 106 (63.7%) respondent belongs to rural areas while 36.3% belongs to urban areas, probably they were catering to predominantly rural population.<sup>18</sup> Most of the respondents had more than 4 antenatal clinic visits. This number of antenatal clinic visits consolidates findings from studies in this region<sup>19,20</sup> A cross sectional descriptive study conducted by Gupta Anita et al on determinants of utilization pattern on Antenatal and delivery services. In her study, majority 92% of the women received ANC during pregnancy and 76.5% of the respondent had 3 or more visits.<sup>21</sup> Women with lower education and those belonging to lower income groups had less than three ANC visits as compared to those with higher education and belonging to high income groups. This difference was statistically significant. Numbers of visits were more in women who got married at age more than 18 years than those married at less than 18 years. In Pakistan, almost three quarters of mothers reported consulting a skilled health provider at least once for antenatal care<sup>15</sup>; 83 however, the differentials in antenatal care coverage are large.

In the current study only 2.6% study subjects were illiterate while 165 (84.2%) completed their secondary

education. Pandey et al found that 16.5% mothers were illiterate, one-fifth studied till primary, one-third till higher secondary and another one-third were graduate or above.<sup>22</sup> Similarly this study found that three-fourth of the study women belonged to household wealth index of more low to middle income. Singh Atul et al in hospital based cross-sectional study found a similar evidence.<sup>23</sup> In the developed world like Finland, almost the entire pregnant population attended antenatal care since it is provided by the state free of charge and is easily accessible.<sup>84</sup> Furthermore, the attendance is encouraged by linking the opportunity to receive maternity benefits to the first visit to maternity care units before the 16<sup>th</sup> week of pregnancy. Though, currently the maternal and perinatal mortality rates and the incidence of suboptimal care are very low.<sup>24,25</sup>

The current study has many advantages in terms of evaluating the status of ANC in the local community. Secondly, a large number of women were selected for assessment of their ANC practices. Thirdly, this is one of the first studies from Pakistan monitoring the quality of ANC.

## Conclusion

This study highlights that one half of women had good ANC care while remaining had decreased ANC quantity and quality. Improving maternal health is one of the sustainable development goals. The social, family, and community context and beliefs affect health during pregnancy. Further studies on quality of ANC and its impact on obstetric outcome are needed. Maternal education, urbanization and income of the household play a key role in availing the antenatal care facilities.

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