

Effect of Frequent Antenatal Visits on Fetomaternal Outcome in Low Risk Obstetrics Patients

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Abstract

Objective: To determine the effect of frequency of antenatal visits on fetomaternal outcome in low-risk obstetrics patients.

Methods: It is a retrospective descriptive study on women delivering at Arif Memorial Teaching Hospital. The antenatal record of the study population was reviewed on admission. The maternal and fetal complications were recorded.

Results: Amongst 336 patients, delivered in duration of 3 months period, 271 (80.5%) patients had at least one antenatal visit while 65 (19.3%) patients had no visit (unregistered). From demographic profile, the maximum number of patients having 5-8 or >8 visits, they were between 20-35 years of age, primigravidas, urban residents, upper class patients having education of intermediate or more. Healthy mothers were seen in >8 and 5-8 visit group i.e. 10 (90.9%) and 150 (83.3%) respectively. The maternal complications like anemia (46.1, 26.2, 10.5, 9%), PIH (12.5%, 4.4%, 0%), APH (7.6%, 2.5%, 0.5%, 0%) PPH (4.6%, 2.5%, 1.1, 0%), eclampsia (3%, 1.2%, 0%, 0%) and ruptured uterus (1.5%, 0%, 0%, 0%) were found to be inversely proportional to the increasing frequency of antenatal visits i.e. unregistered, 1-4, 5-8 and >8 visits respectively. Perinatal complications like low birth weight (23%, 10%, 1.6%, 0%), preterm (16.9%, 10%, 2.2%, 0%), intrauterine death (6.1%, 2.5%, 0, 0%) NICU admission (12.3%, 6.2%, 2.2%, 0%) and early neonatal death (9.2%, 2.5%, 0%, 0%) were found gradually decreasing with increasing number of antenatal visits.

Conclusion: We concluded that the provision of proper antenatal care through frequent antenatal visits is mandatory for having a better fetomaternal outcome. Although the attendance for antenatal checkups is quite encouraging in our study along with attendance, the quality of antenatal care needs to be strengthened too.

Keywords: Frequent antenatal visits (ANVs), maternal outcome, fetal outcome.

How to cite: Aziz U, Afzal M, Sharif S. Effect of Frequent Antenatal Visits on Fetomaternal Outcome in Low Risk Obstetric Patients. *Esculapio - JSIMS* 2021;17(04):342-346.

DOI: <https://doi.org/10.51273/esc21.251746>

Introduction

Adequacy of prenatal care is the key health service to improve fetomaternal outcome.¹ Frequent and high-quality prenatal care is the fundamental right of every pregnant woman to safeguard her own health and that of her baby thus providing her the opportunity for risk factor intervention.²

Recently WHO 2016 ANC Model recommends a mini-

imum of 8 antenatal visits. WHO recommends pregnant women to have their 1st contact in the 1st 12 weeks of gestation with subsequent contact taking place at 20, 26, 30, 34, 36, 38 and 40 weeks of gestation to improve the quality of antenatal care thereby reducing the fetomaternal morbidity among all populations.³

The literature review shows that the most significant predictor for safe fetomaternal outcome is directly related to frequent antenatal visits.⁴ Frequent antenatal care offers health information that improves the health of the women and the newborn.⁵

The factors affecting the frequency of antenatal visits depend on demographic, biological, social, economic, and environmental conditions. Educated parents have a higher number of antenatal visits.⁶ Primigravida of urban areas seek antenatal care more in comparison to those living in rural areas.⁷ Economic instability of women hinders in attaining antenatal care, so financial

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Submission Date:	02-11-2021
1st Revision Date:	08-11-2021
Acceptance Date:	09-12-2021

constraints play a profound role in the non-utilization of ANC services.⁸

Lin Dal suggested that number of antenatal visits had a U trend effect on LBW thus showing that lack of antenatal care is significantly associated with LBW, preterm delivery and NICU admission.⁹

In Pakistan, antenatal care is provided through maternal and child health services that are a part of existing primary health care system.¹⁰ According to Pakistan Demographic and Health survey (PDHS) 2017-18, 86% women received antenatal care from skilled birth attendants provided with 51% women having >4 antenatal visits. Urban women were more likely to receive ANC than rural women (94% vs 82%) and to have > 4 ANVs (71% vs 42%).¹¹

Significant improvement in clinical attendance has been recorded over the years in Pakistan (51% women having >4 ANVs in 2018 vs 37% in 2012 according to PDHS) but even at that, our women do not keep to the standard visit schedule for varying reasons. Our hospital located in periphery of Punjab and provides antenatal care mostly to rural, less educated and financially poor population, so this study was conducted to determine the frequency of ANVs in low risk obstetric population at our work place to observe the impact of frequency of the ANVs on fetomaternal outcome in comparison to that recommended 8 visits by WHO.

Materials and Methods

It was a retrospective descriptive study, conducted

among the women delivered at obstetric unit of Arif Memorial Teaching Hospital which is a 610 bedded Tertiary care hospital located 35km, Ferozpur road Lahore, and is affiliated with Rashid Latif Medical College. This study was carried out over a period of three months from 1st January 2020 to 31st March 2020. Non probability convenient sampling technique was used.

Low risk pregnant females at more than 28 weeks of gestation from PG to G5P4+0 admitted at the time of delivery to labor room and those patients who were totally unregistered or received antenatal care from our hospital, private clinics, other hospitals, LHVS and midwives were included in the study. The antenatal record of the study population presenting in labour were reviewed to check their details of antenatal visits. Any maternal and fetal complications were recorded.

High risk obstetric population with any known medical disorders necessitating more frequent antenatal visits like pregnancy with diabetes, chronic hypertension etc., those delivered at gestation of less than 28 weeks, higher order gestation (like twin, triplet) and >G5 were exclu-

Table 1: Determination of frequency of antenatal visits

Number of antenatal visits	Number of patients N=336	Percentage
No visits/ un registered	65	19.3 %
Inadequate (1-4)	80	23.8 %
Adequate (5-8)	180	53.5 %
More than adequate (>8)	11	3.2 %

Table 2: Comparison of Predictive Values (Bishop Score vs. Cervical Length)

Demographic feature	No visits/ Unregistered n=(65)	1-4 visits Inadequate n=(80)	5-8 visits Adequate n=(180)	>8 visits >Adequate n=(11)	Total n=(336)
Age					
<20	23(35.3)%	23(28.7)%	55(30.5)%	3(27.2)%	104(30.9)%
20-35	10(15.3)%	40(50)%	105(58.3)%	7(63.6)%	162(48.2)%
>35	32(49.2)%	17(21.2)%	20(11.1)%	1(9.0)%	70(20.8)%
Parity					
Primi Gravida	27 (41.5)%	45(56.2)%	102(56.6)%	6 (54.5)%	180(53.5.6)%
Multi gravida	38 (58.4)%	35(43.7)%	78(43.3)%	5 (45.4)%	156(46.4)%
Education					
Illiterate	37(56.9)%	13(16.2)%	23(12.7)%	1(9.0)%	74(22.0)%
Primary	19(29.2)%	16(20)%	38(21.1)%	1(9.0)%	74(22.0)%
Secondary	9 (13.8)%	22(27.5)%	43(23.8)%	3(27.2)%	77(22.9)%
Intermediate or more	0 (0)%	29(36.2)%	76(42.2)%	6(54.5)%	111(33.0)%
Residents					
Rural	45(69.2)%	31(38.7)%	68(37.7)%	4(36.3)%	148(44.0)%
Urban	20(30.7)%	49(61.2)%	112(62.2)%	7(63.6)%	188(55.9)%
Socio economic status					
Lower class	43(66.1)%	18(22.5)%	40(22.2)%	1(9.0)%	102(30.3)%
Middle class	20(30.7)%	23(28.7)%	60(33.3)%	4(36.3)%	107(31.8)%
Upper class	2(3.0)%	39(48.7)%	80(44.4)%	6(54.5)%	127(37.7)%

ded from the study.

Operational Definition

Frequency of antenatal visits was determined in terms of

- Unregistered: those who never got any antenatal checkup.
- Inadequate antenatal visits: 1-4 antenatal visits.
- Adequate antenatal visits: 5-8 antenatal visits.
- More than adequate antenatal visits: >8 antenatal visits.
- Multigravida: G2P1 to G5P4 i.e. women having their second-fifth pregnancy.
- Grand multi gravida: G6P5 i.e. a woman who is pregnant sixth time.

Results

Total 336 pregnant females were enrolled in the study. Amongst 336 females, 65(19.3%) were unregistered, 80(23.8%) were having 1-4 antenatal visits, 180 (53.5%) were having 5-8 visits and only 11(3.2%) did >8 ANVs.

(Table-2) shows relationship of demographic features with the frequency of ANVs. Those who were <20 years of age 30.5%, between age of 20-35 58.3% and >35 years of age 11.1% had adequate number of ANVs. Amongst parity, primigravida had 56.6% and multi-gravida had 43.3% visits who fell in adequate

category of ANVs. From educational status, illiterate had 12.7%, primary had 21.1%, secondary had 23.8% and inter-mediate or more had 42.2% attendance to adequate number of ANVs category. In concern with area of residing, urban had 62.2% while rural had 37.7% adequate visits to hospital for Antenatal care. From the socioeconomic status, lower class had 22.2%, middle class had 33.3% and upper class had 44.4% attendance in adequate group of ANC visits.

(Table-3) shows the relationship of maternal outcome with frequency of ANVs. Amongst healthy mothers, 23(35.3%) had no visit, 44(55%) had inadequate, 150 (83.3%) had adequate and 10(90.9%) had more than adequate ANVs. Anemia was most common maternal complication seen in 71(21.1%) patients. APH and PPH was found in study population in frequency of 8 and 7% respectively, been highest in unregistered group. PIH was the 2nd most common complication seen in 10 (12.5%) patients. Eclampsia was seen in 2(3%) of the unregistered patients with 1(1.2%) patient with inadequate visits. Ruptured uterus and maternal mortality was seen in 1(1.5%) patient each in unregistered category.

(Table-4) shows relationship of fetal outcome parameters with frequency of visits. 21(32.3%) healthy babies were born in unregistered patients, 55(68.7%) babies were healthy in patients with inadequate ANVs, 169 (93.8%) healthy babies were born to mothers with adequate ANVs and

Table 3: Maternal outcome in relation to frequency of ANVs

Maternal outcome parameters	No. visits/ Unregistered n=(65)	Inadequate (1-4) n= (80)	Adequate (5-8) n= (180)	>adequate (>8) n=11	Total n=336
Healthy mothers	23(35.3)%	44(55)%	150(83.3)%	10(90.9)%	227(67.5)%
Anemic	30(46.1)%	21(26.2)%	19(10.5)%	1(9.0)%	71(21.1)%
APH/Placental abruption	5(7.6)%	2(2.5)%	1 (0.5)%	0(0)%	8(2.3)%
PPH	3(4.6)%	2(2.5)%	2(1.1)%	0(0)%	7(2.0)%
PIH	0(0)%	10(12.5)%	8(4.4)%	0(0)%	18(5.3)%
Eclampsia	2(3.0)%	1(1.2)%	0(0)%	0(0)%	3(0.9)%
Ruptured Uterine	1(1.5)%	0(0)%	0(0)%	0(0)%	1 (0.3)%
Maternal Mortality	1(1.5)%	0(0)%	0(0)%	0(0)%	1(0.3)%

Table 4: Relationship of perinatal outcome with frequency of ANVs

Perinatal outcome	No visits/ Unregistered n=(65)	inadequate (1-4) n= (80)	Adequate (5-8) n= (180)	>adequate (>8) n= (11)	Total n=336
Healthy	21(32.3)%	55(68.7)%	169(93.8)%	11(100)%	256(76.1)%
Low birth weight(LBW)	15(23.0)%	8(10)%	3(1.6)%	0(0)%	26(7.7)%
Preterm	11(16.9)%	8(10)%	4(2.2)%	0(0)%	23(6.8)%
IUD	4(6.1)%	2(2.5)%	0(0)%	0(0)%	6(1.7)%
NICU admission	8(12.3)%	5(6.2)%	4(2.2)%	0 (0)%	17(5.0)%
ENND	6(9.2)%	2(2.5)%	0(0)%	0(0)%	8(2.3)%

11(100%) healthy infants were born to mothers with >8 ANVs. Two of most common poor perinatal outcome was encountered in patients with less than adequate ANVs were LBW 7.7% and preterm delivery 6.8% respectively.

Discussion

Antenatal care is considered to be a preventive obstetric health strategy that aims to optimize fetomaternal outcome through surveillance of pregnancy.¹² Frequent antenatal visits with quality antenatal care has significant impact to improve maternal health.¹³ 80 (53.5%) patients had adequate visits which is same as that of WHO 2016 ANC guidance. 80.5% patients received at least one or more ANV with 56.7% patients having 5-8 or >8 ANV. This finding is in comparison to that done by Jin-Won Noh et al who reported that 83.5% patients had one or more ANV but only 57.3% had > four visits.⁴ Our obstetric population aged between 20-35 years had 5-8(58.3%) or >8(63.6%) antenatal visits with higher mean frequency of ANV than their younger (<20 years) and older (>35 years) counterparts. This is in comparison to Abosse et al, concluding that frequent ANVs are significantly influenced by maternal age with adolescent and elderly patients attending ANV less frequently.¹⁴

The frequency of ANVs was inversely proportional to the increasing parity of our study population i.e. coverage of adequate or > adequate ANVs was 54.4% and 54% amongst primi gravidas, 38.8%, 45.4% amongst multigravida and this percentage dropped sharply to 6.6% and 0% amongst grand multigravida. This is comparable to the previous studies concluding that higher parity is a barrier to adequate number of ANVs.¹⁵ Maternal education had significant positive association with frequency of ANVs so we found strong impact of maternal education on optimal use of ANC services that is consistent with findings from other parts of the world.¹⁶ There was significant difference between the frequency of attending ANVs of urban and rural residents with 62.2% and 63.6% of urban residents having 5-8 or >8 ANVs as compared to rural residents having 5-8 (37.7%) or >8(36.3%) ANVs. This is in comparison to study of Osakinle et al who reported that 70% of urban residents had 4 or more ANVs as compared to rural area residents i.e. 65.8%.¹⁷ There was statistically significant relation between the socioeconomic status of study population with ANV frequency which is comparable with the study of Sapna Chourasia et al concluding 87.5% unregistered patients were from lower class as compared to only 0.2% unregistered patients from upper class.¹⁸

The most common poor maternal outcome was maternal anemia with highest percentage (46.1%) in unregistered group in relation to frequency of visits. Risk of anemia in Pakistan is 8-33% and strong relationship between

anemia and pregnancy has been observed so only frequent ANVs can ensure regular compliance with hematinic intake to reduce the risk of anemia.¹⁹ PIH was the second most common maternal complication with overall mean of 5.3%. The frequency of PIH decreased gradually with increased number of ANVs i.e. 12.5% in inadequate visits to 0% in more than adequate visit category. These results agree with that of Abbas M A et al who declared that maternal complications like anemia and PIH occurred frequently in patients with less number of ANVs.²⁰ The overall mean of APH and PPH was 2.3% and 2% respectively in our study. This finding is comparable to the study by Jaleel et al who reported that both these obstetric complications are frequent in patients having less number of ANVs.

In our research, the percentage of eclampsia was highest (3%) in unregistered patients. This result is in comparison to a study of Soomro Shoaib-un-nisa et al which showed that unregistered patients had 6.4% risk of eclampsia as compared to those having frequent visits. The reason for high percentage of eclampsia in unregistered patients and no eclampsia in patients with frequent visits can be explained as those patients with regular ANVs had regular monitoring of BP with effective measures taken to reduce the risk of eclampsia. So adequate ANC is essential to prevent eclampsia.²¹

In our study, only one patient (1.5%) had ruptured uterus in unregistered group. This is comparable to the results of Ebeigbe et al where having no ANV was identified as a risk factor for ruptured uterus.²² Maternal mortality was seen in only one (1.5%) patient with no visit due to PPH. Zaire et al showed that frequent antenatal checkups can reduce maternal mortality by 17 folds.²³

In perinatal outcome, a sharp reduction in LBW from non-attendees to 0% in >8 visit group showed that frequent ANVs favor good outcome which is comparable to that of Zafar Ahmed et al concluding that regular ANC is the first step in preventing occurrence of LBW infants.²⁴ The preterm birth rate(6.8%) in this study is comparable with that of Ping Ling Yeoh (6.9%) which supports that inadequate ANC is associated with higher prevalence of preterm births.²⁵

This study suggested the need to launch an effective antenatal care awareness program at community level to target less educated obstetric population and this program should include:

- Formal or informal sessions for all patients to provide information about good impact of regular antenatal checkups on fetomaternal.
- Safe motherhood strategies for the rural areas and the poor class to enhance antenatal care.
- Special focus to convince primi and multigravida

about importance of ANVs.

- Preparing community health care workers to promote frequent ANVs to improve the quality of antenatal care at private and public health sector.

Conclusion

We found a positive correlation between increased number of ANVs and decreased risk of adverse pregnancy outcome concluding that provision of proper antenatal care through frequent ANVs is mandatory for better fetomaternal outcome. So we Recommend minimum 8 ANC visits in Our Low Risk Population which is in accordance with WHO 2016 ANC Module.

Conflict of interest

None

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Authors Contribution

AU, MJ: Conceptualization of Project

AM, TN, AU: Data Collection

SS, AU: Literature Search

AM, TN, AU: Statistical Analysis

SS, AU: Drafting, Revision