

**TO STUDY THE MATERNAL AND PERINATAL OUTCOME IN BOOKED VERSUS UNBOOKED PATIENTS**Sanju Aggarwal<sup>1</sup>, Udit Mishra<sup>2</sup>, Paribhashita Mishra<sup>1</sup> and \*K.P. Ranjan<sup>3</sup><sup>1</sup>Department of Obstetrics and Gynecology, Gajra Raja Medical College, Gwalior.<sup>2</sup>Department of Urology, Sri Aurobindo Institute of Medical Sciences, Indore.<sup>3</sup>Department of Microbiology, Gajra Raja Medical College, Gwalior.**Corresponding Author: Dr. K.P. Ranjan**

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**ABSTRACT**

**Background:** Maternal anemia, low birth weight of children and maternal mortality are some of the burning issues in developing countries. Antenatal care is the care of the woman during pregnancy whose primary aim is to achieve healthy mother and the healthy baby. **Aims and Objective:** To determine the comparing the socio demographical characteristics, obstetrical complications and maternal and fetal outcomes in booked and unbooked mothers (i.e. antenatal care attendees and non-attendees) with a view to determine the correlation of maternal and perinatal outcomes with antenatal care. **Material and method:** This study in booked and un-booked pregnant mothers to hospitals. There were 500 unbooked and 500 booked pregnant women during the period of 19 months. The Study population was divided into two groups; group A-Booked mothers and group B- Un-booked mothers. Booked patients were those who had attended antenatal clinic at least four times and the un-booked group included the patients who had not attended the antenatal care clinic or less than four visits. **Results:** Maximum number of cases was found between 21-25 years of age. A total 68.6% unbooked cases belonged to low socioeconomic status. Maximum number of patients came directly. Out of 1000 studied anemia found in 7.6% cases in booked cases and 29.8% in unbooked cases and all cases of hand prolapsed were seen in unbooked group. Postpartum hemorrhage seen in 0.6% in booked cases and 1.6% in unbooked cases. Spontaneous vaginal delivery was the major mode of delivery. The low birth weight babies found in 15.6% in booked cases and 43.4% in unbooked cases. Preterm babies seen in 12.4% in booked cases and 40.2% in unbooked cases. Meconium stained liquor seen in 1.4% in booked cases and 3.8% in unbooked cases. Intrauterine fetal death was seen in 1% in booked group and 9% in unbooked group and totals 9 cases of maternal mortality in which 1 in booked cases and 8 in unbooked cases.

**KEYWORDS:** Maternal anemia, booked and unbooked mothers, perinatal morbidity.

**INTRODUCTION:** Maternal anemia, low birth weight of children and maternal mortality are some of the burning issues in developing countries.<sup>[1]</sup> Antenatal care is the care of the woman during pregnancy whose primary aim is to achieve healthy mother and the healthy baby.<sup>[2]</sup> Antenatal care has been intensified over the last two decades due to the advent of primary health care and global efforts towards safe motherhood.<sup>[3]</sup> The percentage of women who seek antenatal care at least once in their entire pregnancy period is 74% in India whereas only 37% have >4 antenatal visits.<sup>[4]</sup> Proportion of maternal and child health has been one of the most important components of Family Welfare Programme of the Government of India and the National Population Policy 2000.<sup>[5]</sup> Moreover, some financial assistance has also been given to mothers under the scheme of Janani Suraksha Yojana (JSY). In our setup, the routine antenatal visits' programme is monthly for 28 weeks, fortnightly from 28-36 weeks and then weekly upto 40 weeks. In case of high risk pregnancies i.e. pregnancies

complicated by anaemia, cardiac disease, lung diseases, hypertension, renal disease and diabetes, these visits are required in a tertiary care hospital.

Our study aimed at comparing the socio demographical characteristics, obstetrical complications and maternal and fetal outcomes in booked and unbooked mothers (i.e. antenatal care attendees and non-attendees) with a view to determine the correlation of maternal and perinatal outcomes with antenatal care.

**MATERIAL AND METHOD:** This clinical prospective study in booked and un-booked pregnant mothers admitted at Department of Obstetrics and Gynecology Kamla Raja Hospital, Gajra Raja Medical Collage and J.A Group of Hospitals, Gwalior, Madhya Pradesh. There were 500 unbooked and 500 booked pregnant women. The duration of this study was from february 2015 to august 2016.

The Study population was divided into two groups; group A-Booked mothers and group B- Un-booked mothers. Booked patients were those who had attended antenatal clinic at least four times and the un-booked group included the patients who had not attended the antenatal care clinic or less than four visits. These mothers were followed till discharge.

#### Inclusion Criteria

1. All women in labor, irrespective of age, gestational age, parity, booking status and mode of delivery.
2. All women admitted for cesarean section.
3. Patients delivered in the study group and readmitted with any complication during puerperium.

4. Pregnant women admitted for antenatal complications followed till 7 days postpartum.

#### Exclusion Criteria

1. Patients delivered elsewhere and referred due to any complication during labor or in puerperium.

#### MATERIALS AND METHODS

Women who had prenatal care and delivery (booked mothers) at Kamla Raja Hospital were admitted and studied. Their data was compared with that of women who never had antenatal care but delivered, in the same health facility during the same period of time (unbooked mothers).

### RESULTS

**Table 1: Distribution of patients according to age**

Age (yrs)	Booked	Percentage	Unbooked	Percentage
< 20	59	11.8	78	15.6
21-25	276	55	251	50.2
26-30	149	29.8	136	27.2
≥ 31	16	3.2	35	7

Above table shows that maximum number of cases were seen between 21-25 years. Less than 20 years pregnancy was seen in 11.8% in booked and 15.6% in unbooked cases. More than 31 years group pregnancy was seen in 3.2% in booked and 7% in unbooked cases; and found that more women were unbooked (p value = 0.009).

**Table 2: Distribution of patients according to parity**

Parity	Booked	Percentage	Unbooked	Percentage
Primigravida	314	62.8	184	36.8
Multipara	183	36.6	300	60
Grandmultipara	3	0.6	16	3.2

Above table shows that compared with booked cases, unbooked cases had a statistically significant higher incidence of multiparity (36.6% in booked and 60% in unbooked cases) and grandmultiparity (0.6% in booked and 3.2% in unbooked cases (p value < 0.001).

**Table 3: Distribution of patients according to socioeconomic status**

Socioeconomic status	Booked	Percentage	Unbooked	Percentage
Upper	91	18.2	0	0
Upper middle	113	22.6	0	0
Lower middle	118	23.6	31	6.2
Upper lower	59	11.8	126	25.2
Lower	119	23.8	343	68.6

Above table shows that 68.6% unbooked cases belonged to low socioeconomic status. None of the case in unbooked group seen in upper socioeconomic status while in booked group 23.8% belong to lower socioeconomic status and 18.2% in upper socioeconomic status (pvalue<0.001).

**Table 4: Distribution of patients according to referral or direct**

	Booked	Percentage	Unbooked	Percentage
Direct	453	90.6	326	65.2
Referred	47	9.4	174	34.8
Own transport	12	2.5	74	14.5
108	35	7.4	100	20.0

Above table shows that maximum number of patients came directly (77.9%) referred cases 9.4% in booked cases and 34.8% in unbooked cases. Cases came by 108, 74.4% were seen in booked cases and 57.8 in unbooked cases (p value<0.001).

**Table 5: Complications in third trimester**

Complications	Booked	Percentage	Unbooked	Percentage
Anemia	38	7.6	149	29.8
Severe anemia	0	0	4	0.8
Anemia with PIH	1	0.2	8	1.6
Antepartum eclampsia	3	0.6	26	5.2
Antepartum hemorrhage	8	1.6	32	6.4
Jaundice	2	0.4	9	1.4
Oligohydramnios	17	3.4	12	2.4
Preeclampsia	6	1.2	24	4.8
PIH	50	10	80	16
Renal disease	1	0.2	0	0
Thyroid disorder	16	3.2	4	0.8
Carcinoma cervix	0	0	2	0.4
Tuberculosis	0	0	3	0.6
GDM	0	0	6	1.2
Heart disease	4	0.8	2	0.4

Above table shows that out of 1000 studied anemia found in 7.6% cases in booked cases and 29.8% in unbooked cases, antepartum eclampsia seen in 0.6% in booked cases and 5.2% in unbooked cases. Antepartum hemorrhage was seen in 1.6% in booked and 6.4% in unbooked cases. Oligohydramnios was seen in 3.4% in booked cases and 2.4% in unbooked cases. Preeclampsia was seen in 1.2% in booked cases and 4.8% in unbooked cases. PIH was seen in 10% in booked cases and 16% in unbooked cases. All cases of GDM were seen in unbooked cases. Heart disease was seen in 0.8% in booked cases and 0.4% in unbooked cases (p value < 0.001).

**Table 6: Intrapartum complications**

Complications	Booked	Percentage	Unbooked	Percentage
Hand prolapse	0	0	5	1
Cesarean hysterectomy	1	0.2	5	1
Obstructed labor	7	1.4	26	5.2
Preterm labor	14	2.8	66	13.2
PROM	21	4.2	43	8.6
Uterine rupture	1	0.2	12	2.4
Fetal distress	12	2.4	23	4.6
Prolonged labor	8	1.6	24	4.8

Above table shows that out of 1000 cases studied all cases of hand prolapsed were seen in unbooked group (1%). Obstructed labor was seen in 1.4% in booked cases and 5.2% in unbooked cases. Preterm labor was seen in 2.8% in booked cases and 13.2% in unbooked cases. PROM was seen in 4.2% in booked cases and 8.6% in unbooked cases. Fetal distress was seen in 2.4% in booked cases and 4.6% in unbooked cases. Prolonged labor was seen in 1.6% in booked cases and 4.8% in unbooked cases. Uterine rupture was seen in 0.2% in booked cases and 2.4% in unbooked cases. Out of total 6 cases of cesarean hysterectomy 5 cases was in unbooked group (1%) (p value < 0.001).

**Table 7: Postpartum complications**

Complications	Booked	Percentage	Unbooked	Percentage
PPH	3	0.6	8	1.6
Respiratory distress syndrome	0	0	8	1.4
Wound gap	4	0.8	13	2.6
Postpartum eclampsia	1	0.2	3	0.6
Pulmonary edema	0	0	2	0.4

Above table shows that postpartum hemorrhage seen in 0.6% in booked cases and 1.6% in unbooked cases. Wound gap were seen in 0.8% in booked cases and 2.6% in unbooked cases. Total 4 cases of postpartum eclampsia 3(0.6%) were seen in unbooked cases. All 02 cases of pulmonary edema were seen in unbooked cases (0.4%) (p value = 0.001).

**Table 8: Mode of delivery**

Mode of delivery	Booked	Percentage	Unbooked	Percentage
Vaginal	314	62.8	271	54.2
Assisted breech	8	1.6	3	0.6
VBAC	8	1.6	10	2
Cesarean section	169	33.8	204	40.8
Laparotomy	1	0.2	12	2.4

Above table shows that spontaneous vaginal delivery was the major mode of delivery. It was higher in booked cases (62.8%) compared to unbooked cases (54.2%). Cesarean section was done in 33.8% in booked cases and 40.8% in unbooked cases. Laparotomy was done in 13 cases, 12 in unbooked cases (2.4%). (p value = 0.001).

**Table 9: Fetal weight**

Fetal weight (kgs)	Booked	Percentage	Unbooked	Percentage
< 2.5	78	15.6	217	43.4
≥ 2.5	417	83.4	238	47.6

Above table shows that out of 1000 cases studied low birth weight babies found in 15.6% in booked cases and 43.4% in unbooked cases. Intrauterine fetal demise is not included in this calculation (p value < 0.001).

**Table 10: Maturity**

Maturity	Booked	Percentage	Unbooked	Percentage
Term	438	87.6	299	59.8
Preterm	62	12.4	201	40.2

Above table shows that out of 1000 cases preterm babies seen in 12.4% in booked cases and 40.2% in unbooked cases) (p<0.001).

**Table 11: Distribution of perinatal morbidity**

	Booked	Percentage	Unbooked	Percentage
Intrapartum				
Meconium stained liquor	7	1.4	19	3.8
After birth				
Apgar score at 5 min				
Apgar score < 7	22	4.4	62	12.4
Apgar score > 7	473	94.6	393	78.6
Congenital anomaly	0	0	4	0.8
NICU admission	122	24.4	257	51.4

Above table shows that out of 1000 cases studied meconium stained liquor seen in 1.4% in booked cases and 3.8% in unbooked cases. Apgar score < 7 seen in 4.4% in booked cases and 12.4% in unbooked cases. All 04 cases of congenital anomaly were seen in unbooked cases (0.8%). NICU admission were seen in 24.4% in booked cases and 51.4% in unbooked cases (p<0.001).

**Table 12: Perinatal mortality**

	Booked	Percentage	Unbooked	Percentage
IUFD	5	1	45	9
Early neonatal death	27	5.4	59	11.8
Total mortality	32	6.4	104	20.8

Above table shows that intrauterine fetal death was seen in 1% in booked group and 9% in unbooked group, early neonatal death was seen in 5.4% in booked group and 11.8% in unbooked group (p<0.001).

**Table 13: Maternal mortality**

	Booked	Percentage	Unbooked	Percentage
Maternal mortality	1	0.2	8	1.6

Above table shows that total 9 cases of maternal mortality, 1(0.2%) in booked cases and 8(1.6%) in unbooked cases.

## DISCUSSION

This showing a negative association between age and booking. This finding of negative association between age and booking as recorded in this study was correlating well with the observation of Alisha Tucker *et al*<sup>[6]</sup> study, done at North Middlesex, London and Owolabi *et al*<sup>[56]</sup> study done in Nigeria and Fawcus *et al*<sup>[7]</sup> study, Harare Hospital Zimbabwe. But in other study by R.A. Hamilton *et al*<sup>[8]</sup>, Coronation Hospital and Johannesburg did not show the same pattern of negative association between age and booking status.

In our study primigravida booked cases (62.8%) were more than the unbooked cases (36.8%). Our study findings correlating with the observations of study of Aamir F *et al*<sup>[9]</sup>, primigravida women were more in booked cases. In this study a higher proportion of unbooked patients belong to low socioeconomic class (68.6%) in comparison to booked group (23.8%). This study observation are correlating with findings of Owolabi *et al*<sup>[10]</sup> study, R.A.Hamilton<sup>[8]</sup> study, and Failing F.*et al*<sup>[11]</sup> study, regarding most of the unbooked patients belongs to low socioeconomic class.

In our study, the frequency of anemia was significantly higher in unbooked cases [29.8%] as compared to booked cases [7.6%]. Nigerian study conducted by Owolabi.<sup>[10]</sup> reported that frequency of anemia is significantly higher among unbooked cases than booked cases.

In our study, rate of eclampsia was higher in unbooked cases (5.2%) as compared to booked cases (0.6%) and this was a significant finding between both study groups. Vijayshree M et al.<sup>[12]</sup> in their observational study, eclampsia was seen in 0.8% of booked group whereas 5.34% of unbooked group.

In our study, incidence of obstructed labour was significantly higher in unbooked cases compared to booked cases (1.4% in booked cases 5.2% in unbooked cases). These findings correlating with the study done by Sahoo S et al.<sup>[13]</sup> (4.55% in unbooked and 0% in booked), Gonied AS et al.<sup>[14]</sup> (5% in unbooked and 2.8% in booked cases) and Chigbu B et al.<sup>[15]</sup> (5.5% in unbooked and 0.1% in booked cases).

In our study, total 06 cases of cesarean hysterectomy, 5 cases were unbooked and only 01 was booked. One cesarean hysterectomy was done in booked case for atonic PPH in a placenta previa case. These findings correlating with the study done by Vijayshree M et al.<sup>[12]</sup>

In our study, C-section was significantly more common in unbooked cases (40.8%) as compared to booked cases (33.8%). Egyptian study by Gonied et al.<sup>[14]</sup> reported c-section in 31.3% in unbooked cases and 12.9% in booked cases.

In our study there was statistically significant difference found between booked and unbooked cases in terms of IUD and early neonatal death. Intrauterine fetal death was seen in 1% in booked cases and 5% in unbooked cases. Early neonatal death was seen in 5.4% in booked group and 11.8% in unbooked group.

In our study total 9 maternal deaths were seen. Out of them 01 (11%) in booked group and 08 (89%) in unbooked group. These findings were correlating with the observations of Vijayasree M et al.<sup>[12]</sup>, in their study 02 cases of maternal death were seen, both were unbooked.

## CONCLUSION

There is a positive correlation between booked mothers with good fetomaternal outcome. Proper antenatal care and institutional deliveries enable obstetricians to diagnose complications at an early stage and early management results in better outcome. Antenatal care aims to identify high-risk pregnancies and to prevent and manage problems and factors that adversely affect the health of the mother and infant. Therefore, proper utilization of the health facilities by government of India and private sectors result in good outcome.

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