

## Study of Feto-Maternal Outcome of Pregnancy in Booked Versus Unbooked Patients

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### Abstract

**Objective:** • To compare feto-maternal outcome of pregnancy in booked versus unbooked patients.

• To study the effectiveness of hospital based antenatal monitoring and care.

**Material and method:** This was a prospective analytical study carried out at tertiary health centre, Surat from July 2017 to February 2018. This study was carried out to assess and compare the impact of fetal and obstetrical outcome in booked and unbooked mothers. Booked patients were those who had at least three antenatal care visits while unbooked patients encompassed those who had no antenatal care throughout the index pregnancy or those who had less than three antenatal visits in the current pregnancy.

**Result:** Total 1000 patients were recruited in study out of which 500 were booked mothers while 500 were unbooked mothers. It was observed that maximum booked and unbooked mothers belonged to the age group of 26-35 years. Besides having a lower education level (48.6% primary education), the majority of unbooked mothers belonged to lower socio economic class (46.2%) as compared to booked mothers (30%) [p value <0.001]. It was observed that unbooked mothers (56.8%) belonged to rural area as compared to booked mothers (27.2 %) [p value <0.001]. It was observed that there was an increased prevalence of anemia,

antepartum haemorrhage, obstructed labour, preeclampsia, eclampsia, postdatism, preterm labour, liquor abnormalities, medical conditions in unbooked mothers as compared to booked mothers. Maternal and perinatal morbidity and mortality rate was found to be significantly higher in unbooked group as compared to booked group. **Conclusion:** The pregnancy outcomes in booked mothers are far more successful in unbooked mothers. Thus it can be concluded that provision of antenatal care improved the maternal morbidity and prevented maternal mortality.

**Keywords:** perinatal mortality; booked mother; unbooked mother; maternal mortality.

### Introduction

Pregnancy and childbirth is a universally celebrated event [1]. It is one of the most important periods in the life of a woman or family and a society, extraordinary care is therefore given by the healthcare system of most countries [2].

Antenatal care is one of the key strategies in maintaining safe motherhood. It consists of care provided to women during pregnancy by skilled health personnel. It includes health assessment of pregnant women, encouraging good health habits,

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addressing pregnancy related complications and providing social and psychological support [3]. The antenatal period provides an opportunity to supply information on birth spacing, which is recognized as an important factor in improving infant survival. Better understanding of fetal growth and development and its relationship to the mother's health has resulted in increased attention to the potential of antenatal care as an intervention to improve both maternal and newborn health. Tetanus immunization during pregnancy can be life-saving for both mother and infant. The prevention and treatment of malaria among pregnant women, management of anaemia during pregnancy and treatment of STIs can significantly improve fetal outcomes and improve maternal health. Adverse outcomes such as low birthweight can be reduced through a combination of interventions to improve women's nutritional status and prevent infections (malaria, STIs) during pregnancy. More recently, the potential of the antenatal period as an entry point for HIV prevention and care, in particular for the prevention of HIV transmission from mother to child, has led to renewed interest in access to and use of antenatal care services.

Antenatal care serves mainly to prevent deviation from antenatal course of events in the pregnancy and is based on sound basic knowledge of physiological changes in pregnancy. These deviations are detected and corrective measures applied. Antenatal care has been intensified over the last two decades due to the advent of primary health care and global efforts towards safe motherhood.

WHO estimated that more than 500,000 mothers die each year because of pregnancy and related complications. It was found that about 88% to 98% of all maternal deaths could be avoided by proper handling during pregnancy and labour. Moreover, seven million of perinatal deaths in the developing countries were due to maternal health problems. Four million were stillbirth and three million were early neonatal deaths. Adequate prenatal care was recognized as an important factor in the reduction of maternal and newborn death.

Maternal complications and poorer perinatal outcomes are highly associated with non-utilization of antenatal and delivery care services and poor socioeconomic conditions of the patient, with poorer outcomes in unbooked than booked patients [4].

As it is concluded from other studies that the incidence of maternal complications could be decreased with improved antenatal care and

intrapartum management. In the light of current maternal & fetal morbidity and mortality it is pertinent to determine the relationship between the booking status of the mother and maternal health outcomes [5].

### Materials and methods

All patients coming for delivery in labour ward of obstetrics and gynecology department, tertiary health centre, Surat from July 2017 to February 2018 were included in this study.

Booked patients were those who had at least three antenatal care visits while unbooked patients encompassed those who had no antenatal care throughout the index pregnancy or those who had less than three antenatal visits in the current pregnancy. The socio-economic status, education status, parity, gestational age and risk factors at the time of admission, number of antenatal visits were recorded. A thorough general and obstetrics examination was done. Investigations such as Hemoglobin estimation, Urine analysis, HIV, HbsAg, VDRL test, Blood grouping and Rh typing were done.

Any medical or obstetric problems in antenatal, intranatal and postnatal period were noted. Labour and its progress were closely monitored, mode of delivery and perinatal outcome were noted in both the groups.

Inclusion criteria for this study were all consenting pregnant women in labour having gestational age > 28 weeks while exclusion criteria were non-consenting pregnant women, postpartum patients and pregnant women with gestational age < 28 weeks.

Maternal outcome was noted in terms of Full term/ Preterm delivery, Vaginal delivery/LSCS and Obstetric complications such as obstetric hemorrhage, anemia, hypertension, obstructed labour, chorioamnionitis, puerperal sepsis, DIC, jaundice, ARF or maternal mortality etc. Foetal outcome was noted in terms of birth weight, maturity, APGAR score and complications such as IUGR, prematurity, respiratory distress, congenital anomalies, still birth, etc.

### Results

Total 1000 patients were recruited in the study of which 500 were booked mothers while 500 were unbooked mothers. There were 500 unbooked mothers who served as the case study

and 500 booked mothers who served as controls. The demographical parameters of this research (unbooked and booked mothers) are shown in Table 1.

It was observed that the features of booked mothers were significantly different from unbooked mothers. There are maximum booked and unbooked mothers belonging to the age group of 26-35 years. It was observed that maximum number of unbooked mothers had a lower educational status i.e. uneducated and primary education as compared to booked mothers in whom maximum had received secondary education (48.6%,  $p < 0.001$ ). Moreover, the unbooked mothers had lower socio economic status and came from rural areas as compared to booked mothers (46.2%, 56.8% respectively,  $p < 0.001$ ).

Mode of delivery between booked and unbooked mothers are shown in Table 2. Booked mothers as well as unbooked mothers have equal number of lower segment caesarean section as the mode of

delivery. The unbooked mothers had a greater percentage of Pre term vaginal deliveries compared to booked mothers which was found statistically significant (48.9.6%,  $p = 0.001$ ).

In the table 3, it is clearly seen that the booking status is a major factor for the occurrence of maternal complications. Thus it was observed that the unbooked mothers were more prone to anemia (17.6% as compared to 5.2%) and hypertensive disorders (7.4% as compared to 3%) than booked mothers. The unbooked mothers had a greater likelihood of having postdatism (40.2%) and antepartum haemorrhage (1.6%) respectively. The percentage of unbooked mothers having obstructed labour (0.6%) is more compared to booked mothers.

Maternal outcome of pregnancy in booked and unbooked mothers are shown in Table 4. The unbooked mothers had a higher frequency of PPH (5.6%), DIC (0.6%), infections (7.2%) and maternal mortality (0.6%) as compared to booked mothers.

**Table 1:** Demographic Profile of booked and unbooked mother

Age	Booked (n=500)	Unbooked (n=500)	p value
18-25	168 (33.6%)	158 (31.6%)	<0.001
25-35	321 (64.2%)	328 (65.6%)	
>35	11 (2.2%)	14 (2.8%)	
<i>Education status</i>			
Primary	129 (25.8%)	243 (48.6%)	<0.001
Secondary	253 (50.6%)	116 (23.2%)	<0.001
Graduate	86 (17.2%)	18 (3.6%)	<0.001
Uneducated	32 (6.4%)	123 (24.6%)	<0.001
<i>Socio-economic status</i>			
Lower	150 (30%)	231 (46.2%)	<0.001
Upper lower	200 (40%)	142 (28.4%)	0.00005
Lower middle	115 (23%)	112 (22.4%)	0.4107
Upper middle	25 (5%)	15 (3%)	0.05505
Upper	10 (2%)	0	NA
<i>Area of residence</i>			
Rural	136 (27.2%)	284 (56.8%)	
Urban	364 (72.8%)	216 (43.2%)	<0.001

**Table 2:** Mode of Delivery Between Booked and Unbooked Mothers:

Mode of Delivery	Booked (n=500)	Unbooked (n=500)	p value
FTND	337 (67.4%)	316 (63.2%)	0.0819
FTVD	5 (1%)	7 (1.4%)	0.2895
Assisted Breech Delivery	2 (0.4%)	4 (0.8%)	
Forceps Extraction	1 (0.2%)	2 (0.4%)	
Vaccum Extraction	2 (0.4%)	1 (0.2%)	
PTVD	24 (4.8%)	48 (9.6%)	0.0016
LSCS	134 (26.8%)	129 (25.8%)	0.3601

Table 5 shows the fetal outcome and complications in booked and unbooked delivery. The unbooked mothers had a higher chance of delivering premature babies (11.5%) and still born babies (4.7%) as compared to booked mothers (6.7%, 0.98%) respectively. The babies born to unbooked mothers had a higher risk of being admitted to NICU than booked mothers (14.3%, 6.5%), suffer early neonatal death (5.5%, 1.97%) and meconium aspiration syndrome (3.7%, 1.38%) respectively.

**Table 3:** Maternal Risk Factors at the time of Admission:

Risk Factors	Booked (n=500)	Unbooked (n=500)
Hypertensive Disorders	15 (3%)	37 (7.4%)
Anemia	26 (5.2%)	88 (17.6%)
Malpresentation:	16 (3.2%)	19 (3.8%)
Breech	14 (0.28%)	16 (3.2%)
Face	1 (0.2%)	0 (0%)
Brow	0 (0%)	1 (0.2%)
Transverse Lie	1 (0.2%)	2 (0.4%)
Previous Lscs	76 (15.2%)	44 (8.8%)
1	65 (13%)	35 (7%)
2	10 (2%)	9 (1.8%)
3	1 (0.2%)	0 (0%)
APH	3 (0.6%)	8 (1.6%)
Placenta Previa	2 (0.4%)	3 (0.6%)
Abruptio Placenta	1 (0.2%)	5 (1%)
Obstructed Labour	1 (0.2%)	3 (0.6%)
Postdatism	140 (28%)	201 (40.2%)
Twins	7 (14%)	3 (0.6%)
Liquor Abnormalities		
Oligohydramnios	22 (4.4%)	18 (3.6%)
Polyhydramnios	20 (4%)	16 (3.2%)
Medical Disorders		
Jaundice	0 (0%)	3 (0.6%)
Heart Disease	2 (0.4%)	3 (0.6%)
Respiratory Disease	1 (0.2%)	0 (0%)
Diabetes Mellitus	1 (0.2%)	0 (0%)
Infections		
Malaria	5 (1%)	11 (2.2%)
Dengue	3 (0.6%)	4 (0.8%)
Typhoid	3 (0.6%)	8 (1.6%)

**Table 4:** Maternal Outcome in Booked and Unbooked Delivery

Maternal Complications	Booked (n=500)	Unbooked (n=500)
PPH	8 (1.6%)	28 (5.6%)
DIC	1 (0.2%)	3 (0.6%)
Infections	12 (2.4%)	36 (7.2%)
Maternal Mortality	0 (0%)	3 (0.6%)

**Table 5:** Fetal Outcome and Complications in Booked and Unbooked Delivery

Maturity	Booked (n=507)	Unbooked (n=503)	p value
Full - Term	473 (93.2%)	445 (88.4%)	<0.0039
Pre - Term	34 (6.7%)	58 (11.5%)	
<i>Fetal Outcome</i>			
Live Birth	502 (99.01%)	479 (95.2%)	<0.0001
Still Birth	5 (0.98%)	24 (4.7%)	
<i>Fetal Complications</i>			
Prematurity	34 (6.7%)	58 (11.5%)	0.69
Meconium Aspiration Syndrome	7 (1.38%)	19 (3.7%)	
Congenital Anomalies	7 (1.38%)	11 (2.1%)	
Nicu Admission	33 (6.5%)	72 (14.3%)	
Early Neonatal Death	10 (1.97%)	28 (5.5%)	

## Discussion

A safe motherhood initiative is a global effort to reduce maternal mortality and morbidity and ensuring the provision of ANC may help progress to the Millennium Development Goals for maternal and child mortality [6].

Adequate antenatal and delivery care enables obstetricians to diagnose complications at an early stage and hence intervention brings about better results.

This study demonstrated the age, literacy rate, socio-economic conditions, area of residence, obstetrical and fetal outcome and complication between the booked and unbooked mothers. Booked mothers were those who had at least three antenatal care visits while unbooked mothers encompassed those who had no antenatal care throughout the index pregnancy or those who had less than three antenatal visits in the current pregnancy.

In this study, 50% of the women who received antenatal care are booked mothers and the remaining 50% of the women who did not receive the antenatal care were unbooked mothers. The unbooked mothers belonged to lower socio-economic group and had greater degree of illiteracy as compared to booked mothers. This is also reported by Aamir F et al. [2].

The older women report slightly lower levels of antenatal care than women under 35. It is generally assumed that use of antenatal care must be lowest in the youngest and oldest age groups, because many of the younger pregnant women will be unmarried and unable or unwilling to use maternal health services, and many of the older pregnant women will have ingrained cultural biases against formal health care.

The educated women have better pregnancy care assessment compared with uneducated women. Moreover, illiteracy and poverty are the major barriers of our society impeding our patients for registration, thus both contribute to poor antenatal care [7-10] whereas literacy is more vital than the degree of affluence [11] and a low maternal educational standard is associated with lower application of maternity care routines and lower perceived value of antenatal care [12].

Most of the patients in the booked group were residents of urban area while those in the unbooked group belonged to rural areas. This finding is consistent with the fact that health care services in rural areas are backward and need

improvement. Thus we can infer that due to lack of adequate and proper health care facilities, patients take less antenatal visits. These patients develop complications and thus present late at tertiary care centers.

The economic and education status make it difficult for women to make informed decisions about using preventive and promotive health services such as antenatal care. This study suggests that people belonging to lower socio-economic status have difficulty accessing antenatal care and this difficulty is reduced as the socio-economic status improves.

Multiparous women were more in the unbooked group which may be due to their prior experience with vaginal deliveries and a false sense of assurance regarding the present pregnancy and the previous successful delivery due to which they become overconfident, getting delivered at home by midwives and arrive at hospitals only in case of complication as it is also evidenced by other study [13].

It is observed that pregnancy outcome is poor in unbooked mothers as compared to booked mothers because of late arrival and referral from primary care units, midwives, undiagnosed cases of placenta previa, IUGR, placenta abruption, gestational diabetes, anemia, PIH, preclampsia and eclampsia. Thus, because of these complications in the unbooked mothers, there is increased maternal and perinatal morbidity and mortality.

The provision of early adequate antenatal care, hospital delivery, timely recognition of complication and management can reduce the maternal and perinatal mortality. Thus it can be concluded that the incidence of maternal complications could be decreased with improved antenatal care and intra partum management [14]. Also in this study, it has been found out that the various factors such as poverty, illiteracy, availability of cheaper nonprofessionals have significant negative impact on maternal and child health in our country. Maternal health care should be free of cost, easily available for the poor and illiterate community. Health education classes should be arranged at community level and public awareness programmes should be arranged.

## Conclusion

This study shows that there is a positive correlation between unbooked mothers and increased risks of maternal and fetal adverse outcomes. This emphasizes the need for regular antenatal visits

and promotes the utilization of antenatal care to avoid the complications of pregnancy.

This study also highlights the fact that the demographic background of the pregnant women plays a major role in determining their choices of opting for an antenatal care or not. Thus there is a need to improve the quality, availability and accessibility of antenatal care services, education level and socio economic status of women. Proper antenatal care and institutional deliveries enable obstetricians to diagnose complications at an early stage and early management results in better outcome.

## References

1. Saxena P, Salhan S, Chattopadhyay B, Nandan D, Adhish S V. Obstetric And Perinatal Outcome Of Teenage And Older Primigravidas- A Retrospective Analysis. *Heal Popul Issues*. 2010;33(1):16-22.
2. Aamir F, Fasih A, Mahesh A, Charles EQ. Original Article A Comparative Review Of Maternal Morbidity And Perinatal Outcome In Booked And Un-Booked Mothers. *Pak J Surg*. 2012;28(4):280-84.
3. Aftab S, Kazi S, Ahsan JA. Assessment Of Pregnancy Outcome In Booked And Unbooked Women. *mc suppl*. 2012;40-3.
4. Yadav K, Chourasia S. Analytical Study To Assess Maternal Outcome In Booked And Unbooked Obstetric Cases. *Int J Biomed Adv Res*. 2016;7(12):569-573.
5. Sahoo S, Somani SR, Somani S, Sree KG, Babu PS. Obstetric & Perinatal Morbidity & Mortality In Booked & Unbooked Antenatal Patients. *Indian J Basic Appl Med Res*. 2015;4(3):510-7.
6. Celia A Brown, 1 Salim B Sohani, 2 Khalid Khan, 3. Antenatal care and perinatal outcomes in Kwale district, Kenya. *BMC Pregnancy Childbirth*. 2008;8:2.
7. Editorial. Why retain traditional birth attendants? *Lancet*. 1983;i:223-4.
8. Editorial. Maternal health in Sub saharan Africa. *Lancet*. 1987;i:255-7.
9. Ekwempu CC. The influence of antenatal care on pregnancy outcome. *Trop J Obstet Gynaecol*. 1988;1:67-71.
10. Harrison KA. The influence of maternal age and parity on child bearing with special reference to primigravidae aged 15 years and under. *Br J Obstet Gynaecol*. 1985;92(Suppl 5):23-31.
11. Nortman Di, Hofstatter E. Population and Family Planning Programmes. A Compendium of Data through 1978, 10<sup>th</sup> ed, 4-11. Population Council. New York 1985.
12. Ransj6-Arvidson AB, Christensson K, Darkwah G, Lunga F, Kakoma C, Chikamata D, et al. Maternity care routines in a teaching hospital in Zambia. *East Afr Med J*. 1989;66:427-36.
13. Jimoh AAG. Utilisation of Antenatal Services at the Provincial Hospital, Mongomo, Guinea Equatorial. *Afr J Rep Health*. 2003;7(3):49-54.
14. Salzar S, Dogra S, Vinette E, Cohelo D, Mutana H. Culture negative tuberculosis in an inner city hospital. *American College of Chest Physician*; 2003.