

Original Research Article


# Comparative study of outcome of high risk pregnancies in unbooked and booked cases in tertiary care centre

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## Abstract

**Background:** An ideal antenatal care includes identification of high risk pregnancies, her safe delivery, and postnatal follow up and care of her new born infant and maintenance of lactation. Maternal complication and poor perinatal outcome result from non-utilization of primary health care services in ground level.

**Materials and methods:** A retrospective study was conducted over a period of 6 months in Department of Obstetrics and Gynecology, tertiary health care centre at King George Hospital, Visakhapatnam. Our study aimed at comparing the socio-demographic, obstetrical complications, maternal and perinatal outcome in booked and unbooked cases delivered in King George Hospital.

**Results:** 66.3% of the high risk cases were unbooked. Most of the complications were seen in unbooked cases. It was observed that booked cases were better managed, maternal and perinatal outcome was better compared to un booked as they were brought in late stage ,after complication have developed leaving less time for intervention.

**Conclusion:** With improvement in antenatal services and care in primary level with the help of health workers, Regular antenatal visits by health workers, Counseling of the mother about advantages of regular antenatal check-ups, Early booking, Early detection, early referral to higher centres may lead to better treatment and management of complications and improving the maternal and fetal outcome.

## Key words

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Unbooked, Booked antenatal patients, Maternal outcome, Fetal outcome.

## Introduction

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In many developing countries, complications of pregnancy and childbirth are the leading causes of death among women of reproductive age are. More than one woman dies every minute from such causes; women die every year. Less than one percent of such deaths occur in developed countries, demonstrating that they could be avoided if resources, services and fairness of its distribution were made available [1-3].

The common goal of obstetrics and pediatrics is to ensure that every pregnancy will culminate in a healthy mother and healthy baby. According to the American Academy of Pediatrics and the American College of Obstetrician and Gynecology (2017), a comprehensive antepartum program is defined as “a coordinated approach to medical care, continuous risk assessment, and psychological support that optimally begins before conception and extends throughout the postpartum period and interconceptional period.”

The object of antenatal care consists of care of pregnant women, identification of high risk pregnancies her safe delivery and postnatal follow up and care of her new born infant and maintenance of lactation. The identification of high risk pregnancy is most important because it is the first step towards prevention and in many instances therapeutic steps can be taken to reduce risk to the fetus or neonate. Identification of high risk pregnancy and management depends on careful antenatal check-ups and attention to history [4-8].

Maternal complications and poor perinatal outcome are highly associated with non-utilization of antenatal and delivery care services and poor socioeconomic conditions of the patient, with poorer outcome in unbooked than booked patients. Various studies have confirmed the positive influence of antenatal care on maternal and perinatal outcomes irrespective of

other maternal characteristics, such as age and parity [9-11].

## Aim and objectives

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It had been observed that the numbers of unbooked cases are still high in spite of all efforts to conduct antenatal check-ups in hospitals. The aims of the study were to compare the socio-demographic characteristics, obstetrical complications and perinatal outcomes in booked and unbooked delivered mothers, to determine the correlation of maternal and perinatal outcomes in booked and unbooked cases.

## Materials and methods

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This was a retrospective study over a period of 6 months of year 2018 (May 2018 to October 2018) in the Department of Obstetrics and Gynecology, tertiary health care centre at King George Hospital, Visakhapatnam.

This was the comparative study of outcome of high risk pregnancies in booked and unbooked cases in a tertiary care centre. Mother considered unbooked if she had not seen any medical personnel in the hospital throughout her pregnancy, or had two or fewer visits to the antenatal clinic, or was referred to the unit as an emergency, but without any records of her antenatal care being forwarded to the unit. It was an arbitrary figure, but was justified by the fact that it was only on second visit that results of tests were available and can be acted upon, in addition it is only after three visits that true trend in progress of becomes evident .

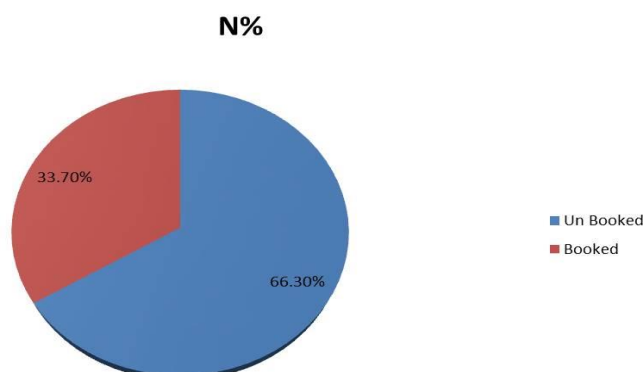
## Results

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Our study comprised of 2518 pregnant mother booked and unbooked attending obstetrics emergency, King George Hospital, Visakhapatnam. In which unbooked cases were 1664 and booked cases were 854, so nearly 66.3% of the cases in KGH were unbooked high

risk cases (**Figure – 1**). Total number of cases studied in a period of 6 months that was 2518 and compared the complications between booked and unbooked cases.

**Figure – 1:** Booked and unbooked cases.



**Table - 1:** Distribution of cases according to age.

Age (Years)	Number of Cases	Percentage %
<20	428	16.9
20-30	1910	75.8
>30	180	7.1

**Table - 2:** Distribution of cases according to parity.

Parity	Number of cases	Percentage
Primi	1218	48.3
Multi	1085	43
Grand Multi	215	8.5

Maximum number of cases in the present study was in the group of 20-30 years, comprising of 76% of total cases (**Table – 1**). Majority of cases in the study were primi gravidae (**Table – 2**). Majority of Obstetric complications were seen in unbooked cases than booked. Pre eclampsia cases in unbooked were 245 compared to booked were 37 cases (**Table – 3**). Majority of medical complications were seen in unbooked cases than in booked for example anemia cases in unbooked were 81 compared to booked were 20 (**Table – 4**).

We had included both high risk and no risk cases in unbooked and booked category for comparison and came to the conclusion that high risk cases both booked and und unbooked had significantly delivered by caesarean section. The no risk cases were not included in the study but only taken for comparison (**Table – 5**). Among

the unbooked cases, 52.2% babies were well at the time of birth whereas in among the booked cases, 70% of babies were well at birth. Perinatal mortality also was more in unbooked cases (5.4%) and among booked (1.9%) as per **Table – 6**. All the maternal deaths were seen in unbooked cases as they were referred to KGH at the last stage (**Table – 7**).

## Discussion

More than 500,000 women die of childbirth every year worldwide at present. One woman dies and twenty other suffer from injury or disease because of childbirth every minute. Of these, India alone accounts for about 100,000 maternal deaths every year, with an overall maternal mortality rate of 130 per 100,000 live births. Most maternal deaths are due to hemorrhage, anemia and puerperal complications, obstructed labor, PIH, anemia and

infections and the vast majority would be preventable with universal access to antenatal care and an effective system or referral. The majority of unbooked mothers take up little of the doctors' time because they receive minimal

or no antenatal care and spend only a short time in hospital. Most of symptoms are not identified and they are incompletely treated and followed up contributing to maternal and fetal morbidity and mortality.

**Table - 3:** Comparison of obstetrical complications in unbooked and booked cases in tertiary center.

Obstetric complications	Unbooked cases		Booked cases	
	N	%	N	%
<b>Hypertensive disorders</b>				
1. Pre eclampsia	245	9.7	37	1.46
2. Eclampsia	40	1.58	1	0.039
3. Imminent eclampsia	14	0.5	0	0
4. Gestational hypertension	54	2.1	81	3.2
<b>Obstetrical hemorrhage</b>				
1. APH	25	0.9	2	0.079
Abruptio	26	1	15	0.59
Placenta previa	41	1.6	10	0.39
2. PPH				
<b>Gestational diabetes mellitus</b>	37	1.4	51	2
<b>Preterm</b>	101	4	52	2
<b>Post-term</b>	33	1.3	49	1.9
<b>Multi-fetal pregnancy</b>	51	2	17	0.67
<b>Obstructed labor</b>	29	1.1	1	0.039
<b>Rupture uterus</b>	19	0.75	0	0
<b>Oligohydramnios</b>	64	2.54	48	1.9
<b>Polyhydramnios</b>	24	0.95	18	0.7
<b>Post cesarean section</b>	266	10.5	220	8.7
1. 2 Previous LSCS	6	0.23	4	0.1
2. 3 Previous LSCS	1	0.039	1	0.039
<b>Abnormal lie</b>				
1. Transverse lie	5	0.19	3	0.1
2. Oblique lie	4	0.1	0	0
3. Unstable lie	1	0.039	0	0
<b>Abnormal presentation</b>				
1. Breech	59	2.34	32	1.27
2. Cord prolapsed	5	0.1	1	0.039
3. Face presentation	2	0.07	0	0
4. Hand prolapse	6	0.23	0	0
5. Footling	3	0.1	0	0
6. Brow	2	0.079	1	0.039
<b>Rh negative</b>	87	3.4	46	1.82
<b>Cephalo-pelvic disproportion</b>	17	0.67	14	0.5
<b>Others</b>				
1. Molar pregnancy	3	0.1	0	0
2. Meconium stained liquor	90	3.5	22	0.8
<b>Total</b>	1360		726	

**Table - 4:** Comparison of medical complications in unbooked and booked in tertiary center.

Medical complications in pregnancy	Unbooked cases		Booked cases	
	N	%	N	%
<b>Hematological disorders</b>				
1. Anemia	81	3.2	20	0.79
2. Sickle cell anemia	9	0.35	3	0.1
3. Thalassemia	0	0	1	0.039
<b>Heart disease</b>	36	1.42	19	0.75
<b>Pulmonary disease</b>	15	0.59	4	0.15
<b>Renal disease</b>	1	0.039	1	0.039
<b>Hepatic disease</b>				
1. Jaundice	19	0.75	3	0.1
2. Pulmonary hypertension	2	0.079	0	0
<b>Endocrinology disorder</b>				
1. Hypothyroid	32	1.27	33	1.3
2. Overt diabetes mellitus	9	0.35	11	0.43
<b>Thrombocytopenia</b>	30	1.19	4	0.15
<b>Epilepsy</b>	14	0.55	18	0.71
<b>Fever</b>	53	2.1	6	0.23
<b>Polio</b>	2	0.079	2	0.079
<b>Gastrointestinal disorder</b>	1	0.039	3	1.1
<b>Total</b>	304		128	

**Table - 5:** Mode of delivery in tertiary care centre.

Mode of delivery	Unbooked cases				Booked cases			
	High risk		No risk		High risk		No risk	
<b>Normal delivery</b>	400	15.8%	431	81%	230	9.13%	610	92.8%
<b>Abnormal delivery</b>	290	11.5%	98	18.5%	70	2.77%	47	7.1%
<b>Caesarean section</b>	974	38.6%	---	---	554	22%	---	---
<b>Total</b>	1664	---	529	---	854	---	657	---

**Table - 6:** Perinatal outcome in high risk pregnancy.

Perinatal outcome	Unbooked cases		Booked cases	
<b>Babies well at birth</b>	871	52.2%	600	70%
<b>Babies sent to SNCU</b>	535	32.1%	235	27.5%
<b>Intrauterine death</b>	138	8.2%	1	0.11%
<b>Still birth</b>	17	1.02%	0	0
<b>Anomalous babies</b>	13	0.7%	1	0.11%
<b>Total</b>	1574		837	
<b>Perinatal mortality</b>	90	5.4%	17	1.9%

**Table - 7:** Maternal deaths in tertiary hospital.

	Unbooked cases	Booked cases
<b>Maternal mortality</b>	<b>45</b>	<b>0</b>

In this study, 2518 high risk cases were studied. Out of these 1664 (66.3%) women were unbooked and came for delivery and remaining 854 (33.7%) women were booked and had regular antenatal check-ups either in this hospital or outside by a private practitioner. This study aimed to compare the socio-demographical characteristics, obstetrical complications and fetal and maternal outcomes in pregnant women booked for antenatal care and delivery in our centre were compared with that of women unbooked for antenatal care in our centre or brought in during the course of labor because of onset of complications, but without any records of her antenatal care being forwarded.

In this study, age group between 20-30 years was maximum 75.8% compared to other age groups. About 48.3% were primigravidae and 43% were multigravidae. All the cases studied in this study belong to low socioeconomic status, as KGH is a government hospital unbooked cases are three times higher than booked cases. Low socioeconomic status makes it difficult for women to take decision about using preventive and promotive services. Because of cost of treatment in centres with high standards of care, poor pregnant woman are not utilizing the facilities. They were not taking services of public sector because of distance, and unawareness of hazards. The incidence of pregnancy complications is certainly increased in women who belong to less affluent communities and deliver in poor resource settings, resulting in a much higher toll in terms of maternal morbidity and mortality.

In this study, pregnancy complications were observed more in unbooked group which include Anemia, Pre-eclampsia, Eclampsia, Antepartum hemorrhage, Heart diseases.

In this study, the frequency of anemia was higher in unbooked 3.2% as compared to booked cases 0.7%. Nigerian study conducted by Owolabi AT, et al. [10] reported that frequency of anemia is significantly higher among unbooked than booked.

In this study, rate of Pre-eclampsia was higher in unbooked (9.7%) cases as compared to booked (1.46%) cases. Eclampsia was also higher in unbooked cases (1.58%) than in booked cases (0.04%). Vijaysree M, et al. [12] in their observational study, eclampsia was seen in 0.8% of booked whereas 5.34% of unbooked. In the study by Owolabi A.T., et al. [10], pre eclampsia/eclampsia was 7.9% in unbooked group and 2.1% in booked group.

In this study, abruption (0.9%), placenta previa (1%) and PPH (1.6%) were higher in unbooked cases than in booked abruption (0.07%), placenta previa (0.5%) and PPH (0.39%).

In this study, obstructed labour was significantly higher in unbooked (1.15%), compared to booked (0.039%). These findings correlating with the study done by Sahoo S, et al. [13] (4.55% in unbooked and 0% in booked), Gonied AS, et al. [14] (5% in unbooked and 2.8% in booked cases) and Chigbu B, et al. [15] (5.5% in unbooked and 0.1% in booked cases).

In this study, cesarean section was significantly more common in unbooked cases (38.6%) as compared to booked cases (22%). Egyptian study by Gonie AS, et al. [14] reported cesarean section in 31.3% in unbooked cases and 12.9% in booked.

In this study, there was statically significant difference found between booked and unbooked cases in terms of IUD and early neonatal death. Intrauterine fetal death was seen in unbooked cases 8.2% than in booked cases 0.039%. Perinatal mortality was more in unbooked cases (5.4%) than in booked cases (0.6%).

In this study, 45 maternal deaths in were seen in a period of 6 months and they were all unbooked cases. These findings were correlating with the observations of Vijaysree M, et al. [12], in their study, 2 maternal deaths were seen, both were unbooked.

## **Conclusion**

Educating the community about the benefits of receiving regular antenatal care, at grass roots level may have a significant impact on improving pregnancy outcomes. Currently, the level of care is diluted and may institutions at the periphery are not utilized at all.

Antenatal care and its importance can be implemented through general and health education, improved public health status, developing infrastructure, transport and communication facilities.

Primary should involve maternity homes and centres which should be staffed by trained midwives supervised by obstetricians. Secondary care should involve hospitals directed obstetricians and capable of providing emergency services. Tertiary care should be available in University teaching hospitals promoting health care work training and research.

In our study, we found that distance from hospital too had an effect on outcomes where even booked mothers reached hospital in late stage of labor.

Most of the complications of pregnancies were seen in unbooked grouped than in booked. It was observed that booked cases of better managed and maternal and perinatal outcome was better than unbooked as they were brought in late stage, after complications have developed leaving less time for intervention.

Booked pregnancies had better maternal and perinatal outcomes. Focus group discussion and results elucidated that service utilization can be improved, fairly equipping peripheral health institutions with the improvement in antenatal services and care in primary level with the help of health workers.

Regular antenatal visits by health care worker, Counseling of the mother about advantages of

regular antenatal check-ups, Early booking, Early detection, early referral to higher centres may lead to better treatment and management of complications and improving the maternal and fetal outcome.

## **References**

1. Mundhra R, Singh AS, Agarwal M, Kumar R. Utilization of antenatal care and its influence on fetal-maternal outcome in a tertiary care experience. *Int J Reprod Contracept Obstet Gynaecol.*, 2013 Dec; 2(4): 600-606.
2. Dolin PJ, Raviglione MC, Kochi A. Global tuberculosis incidence and mortality during 190-2000. *BULL World Organ*, 1994; 72: 213-20.
3. Van D., Potaels F. Limitations and requirements for quality control sputum smear microscopy. *Int J Tubercle Lung Dis.*, 1998; 2756-65.
4. Park K. *Parks Textbook of Preventive and Social Medicine*. 21<sup>st</sup> edition, Jabalpur India, M/s Banarasidas Bhanot, 2011.
5. National population policy - 2000. Department of Family Welfare. Ministry of health and Family Welfare. Government of India, New Delhi.
6. Tucker A., Ogutu D., Yoong W., et al. The unbooked mother: a cohort study of maternal and foetal outcomes in a North London Hospital. *Arch Gynecol Obstet*, 2010; 281: 613.
7. Fawcus SR, Crowther CA, Van Baelen P, Marumahoko J. Booked and unbooked mothers delivering at Harare Maternity Hospital, Zimbabwe: a comparison of maternal characteristics and foetal outcome. *Cent Afr J Med.*, 1992 Oct; 38(10): 402-8.
8. Hamilton RA, Perlamann T, De Souza JLL. The unbooked patient, reason for failure to attend antenatal clinics. *S Afr Med.*, 1987; 71: 28-30.
9. Aamir F, Fasih A, Mahesh A, Charles EQ. A comparative review of maternal

- morbidity and perinatal outcome in booked and un-booked mothers. Pak J Surg., 2012; 28(4): 280-284.
10. Owolabi AT, Fatusi AO, Kuti O, Adeyemi A, Faturoti SO, Obiajuwa PO. Maternal complications and perinatal outcomes in booked and unbooked Nigerian mothers. Singapore Med J, 2008; 49(7): 526-531.
  11. Failing F, Ripa P, Tefuarani N, Vince J. A comparison of booked and unbooked mothers delivering at the Port Moresby General Hospital. P NG Med J., 2004 Sep –Dec; 47(3-4): 174-80.
  12. Vijayasree M. Comparative study of maternal and foetal outcome of labour in booked versus unbooked antenatal mothers in rural India. IOSR JDMS, Apr 2015; 14: 55-61.
  13. Sahoo S, Somani SR, Somani S, Sree KG, Babu PS. Obstetric and perinatal morbidity and mortality in booked and unbooked antenatal patients. Indian Journal of Basic and applied research, June 2015; 4(3): 510-517.
  14. Gonied AS. Maternal complications and perinatal outcomes in booked and unbooked mothers. Journal of American Science, 2011; 7(10): 792-796.
  15. Chigbu B, Onwere S, Kamanu CI, Aluka C, Okoro O, Adibe E. Pregnancy – outcome in booked and unbooked mothers in South Eastern Nigerian. East Afr Med J, 2009; 86: 267-27.