



ORIGINAL RESEARCH PAPER

Obstetrics & Gynecology

ENIGMA AND CHALLENGES OF UN-BOOKED OBSTETRIC PATIENTS IN A BUSY ZONAL HOSPITAL

KEY WORDS: Booked case, Unbooked case, Un-booked case, Antenatal care, Obstetric care, Fetal outcome, Maternal mortality

Binay Mitra	Head of Department, Obstetrics & Gynecology.
Bhabani Prasad Acharya*	Medical Officer, Community Medicine. *Corresponding Author
Vinoy Kumar	Senior Registrar, Military Hospital, Jammu, India.

ABSTRACT

For the growth of a developing nation, healthy mothers and children are essential. For a better outcome of pregnancy and delivery of a healthy child, booking of pregnancy and its follow-up has to be done. This will lead to decrease maternal and perinatal death and help India to achieve the SDG goal set by UNDP. A retrospective record review (2015-2020) of all pregnancy cases delivered in a tertiary care Military hospital was done based on available risk factors and complications of pregnancy. The hospitals had a record of 82.3% booked cases and most of them are educated at least up to the 10th standard. But, higher education of mother, history of abortion and service of the spouse had an association with booking/un-booking of pregnancy. Complications of pregnancy like stillbirth and instrumental delivery were observed more in un-booked cases. Other complications like anaemia, preterm labour are mostly linked to non-booking of pregnancy. Education of mother and her spouse regarding MCH (maternal and child health) care could improve the booking status in a health care setup which will lead to an increase in better pregnancy outcomes and fewer complications. Empowerment and awareness of the relatives/ caregiver of a pregnant lady could prevent the complications and last-minute rush up to hospitals.

INTRODUCTION

Childbirth is a natural and physiological event, but pregnancy is one of the precious events in the life of a woman, her family and society. Extra-ordinary care is the need of the hour for cherishing this phase of life and for the betterment of the future of society and nation.¹ Maternal health refers to the health of the mother during pregnancy, childbirth and in the postpartum period². Diagnosis of pregnancy and its progression although a natural process, its monitoring is needed for a better outcome. Following the diagnosis of pregnancy, the first pre-natal visit called "Booking visit" should occur within the 1st trimester. But pregnancy is said to be "booked" if there are at least 3 antenatal visits with at least one dose of Td vaccination after the booking visit. Some author also considers pregnancy to be "booked", if she had minimum two visits not more than 2 weeks apart prior to delivery.³

India, being a country with the 2nd largest population in the world and a developing nation is in dire need of healthy mothers and children. The maternal mortality ratio and perinatal mortality ratio of India are 113 per 100,000 live birth⁴ and 23 per 1,000 live births⁵ respectively. To address this issue and to achieve the goal SDG-3.1 (Sustainable development Goal) of 70 maternal deaths per 1,00,000 live births by 2030,⁶ maternal care needs to be improved. Early diagnosis of pregnancy and its regular follow-up to identify the complications and management of the same before any irreversible damage and to improve the outcome of pregnancy. Booking of pregnancy to a health facility can be a quick fix for proper utilization of resources and prevention of emergency landing up of pregnancy or its complication.

To strategize and improvise maternal care, the risk factors for booking of pregnancy is to be pinned down. Nonetheless, complications that arise out of non-booking of pregnancy is to be evaluated before its implementation. Hence, the study is aimed to determine the possible risk factors, obstetric complications, maternal and perinatal outcomes in booked and un-booked mothers delivered at a military hospital.

METHODOLOGY

The 70 bedded Obstetrics and Gynecology department in the military hospital of Jammu is one of the busiest hospitals. This is a retrospective record review of all pregnancy cases

delivered in the hospital from January 2015 to December 2020. The medical files of all antenatal cases were reviewed and relevant data were entered into MS office Excel (2019 version). A complete enumeration of all the cases was done. Pregnant women admitted for any complication or treatment without delivery of the fetus were excluded from the study. A detailed history of pregnancy regarding the education of the mother, pregnancy status of the mother, booking status for the current pregnancy, service category of husband, pregnancy outcome and complications were fetched. The reason for non-booking was ascertained for the relevant cases. Booked pregnancy for this study was defined as pregnant women who had three or more antenatal visits to the centre. The women who had no prenatal care at all thorough out the pregnancy or registered in this centre but had ≤ 2 visits were considered un-booked pregnancies. Descriptive data analysis was done and variables were reported using counts and frequencies (%). c2 test was used to check the association and p-value <0.05 was considered statistically significant.

RESULTS

Out of 9451 deliveries that occurred in this hospital in the duration of the study, 82.3% (n=7779) were booked cases while 17.7% cases were un-booked. More than half of the pregnant ladies were educated up to the 10th standard. There found no illiterate women having pregnancy in this study. The education of the mother was significantly associated with the booking status of pregnancy (p<0.001). Only 1/3rd pregnancies were primigravida and 21.8% of pregnant women had a history of previous abortion. While the gravid status of pregnancy was not associated with the booking of pregnancy, women having a history of previous abortion had a highly significant association with it (p<0.001). There had a higher proportion (94.7%) of delivery of wives of ORs (other ranks) and among these 18.6% pregnancy were un-booked. There found a significant association between the service category of husband and booking of pregnancy (p<0.001). (Table 1 below)

Around half of the pregnancy resulted in normal vaginal delivery (41.5%) followed by cesarean section in 28.7% of cases. Preterm delivery occurred in 28.7% of cases. Though instrumental delivery is rare (0.8%) in this set-up, more than 3/4th of it happened to un-booked cases. The most common complication related to pregnancy was anaemia (34.2%)

followed by Premature rupture of membrane (10.2%). There found an association of pregnancy outcome ($p < 0.001$) and complication like anaemia ($p < 0.001$), gestational hypertension ($p = 0.001$), preeclampsia ($p = 0.017$), preterm labour ($p < 0.001$), antepartum hemorrhage ($p < 0.001$), intrauterine growth retardation ($p < 0.001$), intrahepatic cholestasis ($p = 0.004$) with booking status of pregnancy. (Table 2 below)

The reason for the non-booking of the Antenatal case was ascertained ($n = 1672$). The most common reason for non-booking was the distance of the hospital/clinic (47%) followed by the type of spouse posting (44%). (Figure 1 below)

Table 1: Basic demographic profile of pregnancy cases

		Booked (n=7779) (82.3%)	Un-booked (n=1672) (17.7%)	Total (n=9451) (100%)	p-value
Education of mother	10 th	4216 (84%)	802 (16%)	5108 (53.1%)	<0.001
	12 th	2102 (83.2%)	426 (16.8%)	2528 (26.8%)	
	Graduate	1357 (76%)	428 (24%)	1785 (18.9%)	
	Post-graduate	104 (86.7%)	16 (13.3%)	120 (1.3%)	
Pregnancy status	Primigravida	2789 (82.7%)	584 (17.3%)	3373 (35.7%)	0.47
	Multipara	4990 (82.1%)	1088 (17.9%)	6078 (64.3%)	
	Previous abortion	1758 (85.3%)	302 (14.7%)	2060 (21.8%)	
Service category of husband	Officer	156 (99.4%)	01 (0.6%)	157 (1.7%)	<0.001
	JCO	331 (98.8%)	04 (1.2%)	335 (3.5%)	
	OR	7288 (81.4%)	1666 (18.6%)	8954 (94.7%)	
	Civilian	4 (80%)	1 (20%)	5 (0.05%)	

*Abbreviations:- JCO: Junior Commissioned Officer; OR: Other ranks

Table 2: Various outcomes of booked and un-booked pregnancy

		Booked (n=7779)	Un-booked (n=1672)	Total (n=9451)	p-value
Pregnancy outcome	FTND	3424 (87.3%)	498 (12.7%)	3922 (41.5%)	<0.001
	LSCS	2169 (79.8%)	547 (20.1%)	2716 (28.7%)	
	Instrumental	17 (23.6%)	55 (76.4%)	72 (0.8%)	
	Still birth	0 (0%)	25 (100%)	25 (0.3%)	
	Preterm	2169 (79.9%)	547 (20.1%)	2716 (28.7%)	
Pregnancy complication	Anaemia	2321 (71.8%)	910 (28.2%)	3231 (34.2%)	<0.001
	PROM	778 (81%)	182 (19%)	960 (10.2%)	
	Gestational Hypertension	520 (77.6%)	150 (22.4%)	670 (7.1%)	
	Preeclampsia	370 (78.2%)	103 (21.8%)	473 (5%)	

Preterm labour	280 (46.1%)	327 (53.9%)	607 (6.4%)	<0.001
APH	216 (68.1%)	101 (31.9%)	317 (3.4%)	<0.001
IUGR	658 (75.2%)	217 (24.8%)	875 (9.3%)	<0.001
IHCP	381 (77.4%)	111 (22.6%)	492 (5.2%)	0.004

* **Abbreviations:** FTND: Full-term Normal vaginal delivery; LSCS: Lower segment cesarean section; PROM: Premature rupture of membrane; APH: Antepartum hemorrhage; IUGR: Intrauterine growth retardation; IHCP: Intra-hepatic cholestasis of pregnancy

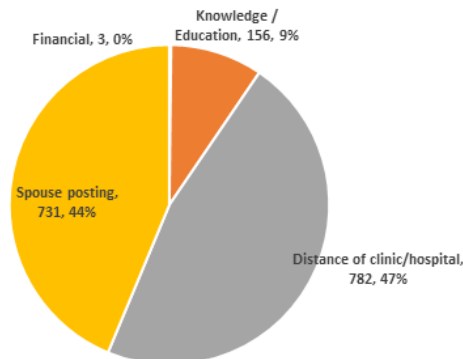


Figure 1: Reason for non-booking of pregnancy in the hospital (n=1672)

DISCUSSION

Our Obstetrics and Gynecology department is a very busy tertiary care hospital with limited specialist manpower because of an inherent system of manpower distribution in our work setup. An increase in the number of un-booked cases in addition to overcrowding of booked cases stretches the infrastructure hampering the basic amenities available in the hospitals.^{7,8} This hampers the quality of care for the patient and limit the resource for the complicated case.⁹ Lack of antenatal care has been associated with increased morbidity and mortality to the mother and her baby.¹⁰ In this study, the author tried to find out, the factor associated with non-booking of pregnancy with the hospital associated with delivery.

The booking status of pregnancy in this hospital is much higher (82%) than the national standard. According to NFHS4 (National Family Health Survey-4), 58% of pregnancy had their ANC check-up in the 1st trimester and 51% had at least 4 ANC visits. Furthermore, the national average of vaccination against Tetanus and registration of pregnancy was 89% as quoted in the survey while only 21% of the pregnant lady had full ANC check-ups.¹¹

More than 50% of pregnant women had education up to the 10th standard and the education of the mother had a significant association with the booking status of pregnancy. This finding is corroborated by another study Adhikary et al.¹²

The author found no association between gravid status and booking in contrast to the study conducted by Setia and Maheshwari et al.¹³ This might be due to higher booking status in this setup compared to the latter one. The study conducted by Wright AD et al in Birmingham showed that abortion had an association with the booking status of pregnancy which is consistent with our result.¹⁴

Adverse outcomes of pregnancy like stillbirth and instrumental delivery mostly occur in un-booked cases and this finding is strengthened by other studies.¹⁵ But, the stillbirth rate of 0.03% (vs 2.2% for India) is a rare outcome of the pregnancy and only occurred in non-booked cases.¹⁶

Moreover, the author found an association of complications like anaemia, pre-eclampsia, gestational hypertension, antepartum hemorrhage, preterm labour with booking status of pregnancy. This finding is endorsed by another study conducted by Chaurasia et al.²

Later on, the reason for not booking of pregnancy was ascertained and distance of hospital followed by job/posting of spouse were the commonest adversities. In a military scenario, a portion of soldiers stays with families, rest of the soldier's families stay back at their houses and far away from a military hospital. They are the neglected lots that come as Obstetric ambush in the middle of the night. However, education has also a big role in attending antenatal care clinics regularly. Social changes are often slow but steady and the same is true for our future ante-natal care. Financial reasons like family income, a risk factor for non-booking of pregnancy found in a study conducted by Adhikary et al¹² was the least common reason for non-booking of pregnancy. This might be due to the free medical coverage of all the patients.

The strength of the study was having a large sample size with the complete enumeration of all the participants over 5 years. Moreover, it was a retrospective record review having minimal bias. It also includes a diverse population belonging to various ethnicity, socio-economic status and education level. But the study does not void of limitation. It was conducted in a tertiary level military hospital with a well-equipped Gynae and obstetric department due to which the result might not be generalized to other areas or setup. Various other risk factors like education, age of the pregnancy, income could not be analyzed.

Summary

Poor antenatal care often leads to the adverse feto-maternal outcome. For good antenatal care, at least four ANC check-up with the booking of pregnancy is needed in the recommended time. The education of the mother, history of abortion and job commitment of spouse are the crucial factors in the booking of pregnancy. Education of mother and her relatives/ caregiver belonging to difficult terrain on maternal and child care has to be improved along with better referral services for increased booking of pregnancy and its outcome. The authors declared no conflict of interest.

REFERENCE

1. Banta D. What is the efficacy/effectiveness of antenatal care and the financial and organizational implications? Copenhagen, WHO Regional Office for Europe (Health Evidence Network report, 2003. [cited 2021 Sep 17]. Available from: https://www.euro.who.int/data/assets/pdf_file/0007/74662/E82996.pdf
2. Chourasia S, Yadav K. Analytical study to assess fetal and perinatal outcome in booked and unbooked obstetric cases. *Int J Reprod Contracept Obstet Gynecol.* 2016 Dec 20;6(1):203.
3. Ba E, Idris A. Gestation age at antenatal clinic booking in Sokoto, northern Nigeria. *Afr J Med Med Sci* 1998 Dec [cited 2021 Sep 17];27(3-4). Available from: <https://pubmed.ncbi.nlm.nih.gov/10497639/>
4. Puram RK. SAMPLE REGISTRATION SYSTEM. Available from: https://censusindia.gov.in/vitalstatistics/SRS_Bulletins/MMR%20Bulletin%202016-18.pdf
5. Estimates of Mortality Indicators-2017.pdf [cited 2021 Sep 17]. Available from: <https://censusindia.gov.in/vitalstatistics/SRSReport2017/11.%20Chap%204-Estimates%20of%20Mortality%20Indicators-2017.pdf>
6. Goal 3 | Department of Economic and Social Affairs [cited 2021 Sep 17]. Available from: <https://sdgs.un.org/goals/goal3>
7. Bajpai V. The Challenges Confronting Public Hospitals in India, Their Origins, and Possible Solutions. *Adv Public Health.* 2014 Jul 13;2014:e898502.
8. Failing F, Ripa P, Tefurani N, Vince J. A comparison of booked and unbooked mothers delivering at the Port Moresby General Hospital: a case-control study. *PNG Med J.* 2004 Dec;47(3-4):174-80.
9. 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 Jul;49(7):526-31.
10. Vijayasree DM. Comparative Study Of Maternal And Fetal Outcome Of Labour In Booked Versus Unbooked Antenatal Mothers In Rural India. :7.
11. India.pdf India fact sheet (Ministry of health & family welfare). [cited 2021 May 28]. Available from: <http://rchiips.org/nfhs/pdf/NFHS4/India.pdf>
12. Adhikary A, Begum A, Joty FS, Sarker NR, Akhter T. Pregnancy Outcome between Booked and Unbooked Cases in A Tertiary Level Hospital. *J Shaheed Suhrawardy Med Coll.* 2018 Jul 5;9(2):43-8.
13. Setia DrS, Maheshwari ProfB. To study maternal complications in booked and unbooked cases. *Int J Clin Obstet Gynaecol.* 2020 Jul 1;4(4):89-93.
14. Wright AD, Nicholson HO, Pollock A, Taylor KG, Betts S. Spontaneous abortion

and diabetes mellitus. *Postgrad Med J.* 1983 May 1;59(691):295-8.

15. Mitra B, Acharya BP. Retrospective Analysis of Risk Factors for Intrauterine Fetal Death in a Busy Zonal Hospital. 2020;10(6):4.