Kathmandu University Medical Journal (2007), Vol. 5, No. 2, Issue 18, 173-176

*Original Article*

# Maternal and Perinatal outcome among the booked and unbooked pregnancies from catchments area of BP Koirala Institute of Health Sciences, Nepal

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**Abstract:**
**Objectives:** To examine the differences in maternal and perinatal outcome among booked and unbooked pregnant women and their perception for underutilization of services targeted for them.
**Methods:** Two thousand two hundred and twenty eight pregnant women, booked and unbooked, attending emergency obstetrics care during Jan.-Dec. 2005, were included in the study; Investigators followed cases till discharge.
**Results**: Tendency for mothers to be booked was found to be significantly associated with age. Booked and unbooked mothers differed by distance to the hospital and parity. There was difference between the periods of gestation at which they presented to the hospital among both the groups ($p<0.0001$). Nearly eighty percent (81.4%) of unbooked mothers did not know the period of gestation. Most of these women conceived during lactational or depo provera-induced amenorrhea. The maternal mortality rate for unbooked mothers was 16 out of 1056 and none among the booked. Perinatal mortality is 3 times less in booked mothers. Higher perinatal mortalities are associated with unbooked mothers and had a higher proportion of maternal intensive care unit admissions and perinatal deaths compared with the booked group. Focus group discussion revealed that the reasons for underutilizations of services are; Distance, cost, disempowerment of women and attitudes of hospital personnel.
**Conclusion**: The opportunities to enhance utilizations are based on distance, cost and client friendly environment of hospital personnel. It has been observed, building teaching hospitals alone, will not have much impact to maternal and perinatal outcome, unless peripheral health institutions are equipped with facilities and service provisions.

**Keywords:** Booked mothers, Unbooked mothers, maternal complication, perinatal outcome.

In many developing countries, complications of pregnancy and childbirth are the leading causes of death among women of reproductive age. More than one woman dies every minute from such causes; 585,000 women die every year[1]. 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[2]. Each year, almost 8 million stillbirths and early neonatal deaths occur. In addition to maternal death, more than 50 million women experience, maternal health problems annually. One quarter of all adult women living in the developing-world currently suffer from short or long term illnesses and injuries related to pregnancy and childbirth[3].

Nepal belongs to the country with highest maternal and perinatal death record; even allowing for under-reporting, mortality is 539 per 100000[1.] Many deaths at tertiary care centers are not included in the district health office statistics. Poor medical recording systems allow for under-reporting such deaths. Despite many attempts to reduce this menace of public health, Nepal has not had a great deal of success. From 1990 to 2000 some improvements have been seen due to infrastructure development in rural areas, which made basic health services more accessible to disadvantaged populations[1]. More recently, the prevailing insurgency currently mitigates against womens' health care in remote areas. The latest published perinatal mortality rate of Nepal is very high (47.4/1000). The leading causes of maternal death and disability are closely linked to poor maternal health during pregnancy, inadequate care during delivery and lack of newborn care.[2, 4]

Nepal's health statistics show 10 percent institutional delivery with assistance of health personnel and 90 percent home delivery without trained, skilled and competent birth attendants[1]. Overall, the female literacy rate aged 15 years + is less than 20 percent. Many delivery practices are occurring in unhygienic conditions. Inadequate clothing for mothers and babies has resulted in neonatal deaths from hypothermia. Most maternal complications and

deaths occur either during or shortly after delivery, yet many women do not receive the essential health care they need during these periods. The percentage of women, who seek antenatal care at least once, is 65 percent in Asia. In Nepal, only 10% of women receive proper antenatal care[1]. The reason for not utilizing existing facilities is also a concern, as many unbooked cases are seen with more complications.[7]

The Institute commands huge human resource as in it employs a great deal of health professionals and commits in its mission statement to change the health status in the region. This level of commitment to improvement from such a prestigious Institution needs to be matched by concerns for equity and access. Maternal health care needs to be addressed from grassroots levels to tertiary care centre provisions, in an integrated approach.

With this impression, this study was planned to explore the differences in maternal and perinatal outcomes among the booked and unbooked cases, so that hospital policy will have the opportunity to improve its extension to community-based health Institutions. The mission success or otherwise of community oriented and population based institutions is yet to be seen. It will be judged on how its satellite peripheral health institutions can improve the service provision demonstrating evidences in outcome.

The objectives of this study is to find out the differences of maternal and fetal outcome between booked and unbooked mothers and to elucidate their perception & reason for under utilization of services targeted for them.

**Material and Methods**

Our study population comprised of 2228 pregnant mothers, booked and unbooked, attending obstetric emergency of B.P.Koirala Institute of Health Sciences, Department of Obstetrics and Gynecology, for delivery; and the mothers who delivered at home and brought to the hospital for emergency obstetric care from January to December 2005. These mothers were followed by the investigators till discharge.

The Study population was divided into two groups; group A-Booked Mothers (n=1172), and Unbooked (n=1056). Booked Patients were those who had attended Antenatal Clinic in our Institute at least once and the unbooked group included the patients who had not attended the antenatal care clinic.

A focus group discussion was organized for four groups of women, doing stratified random sampling, consisting of eight women in each group, before their discharge from the hospital.

The groups were made homogenous in terms of educational background and social class prior to discussion.

Issues discussed with mothers in the Focus Group included: what factors encouraged the booked mothers to avail of antenatal services and the reasons which delayed the unbooked patients to utilize the available services for them.

ANOVA is applied to compare the means; Chi-Square and Fisher's Exact Tests were used for assessing the statistical significance of the association between the variables.

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**Results**

Age (Table 1); distance from the hospital and parity were significant factors in the differences between the groups. Primagravidas accounted for more of the unbooked mothers (100%) compared to the booked group (96.6%).

There was significant difference between the period of gestation at which they present to the hospital among both the groups (< 0.0001). Among the unbooked, 81.4% of the mothers did not know the period of gestation. That is most of the women conceived during lactational or depo provera induced amenorrhea.

16out of 1056 unbooked mothers underwent obstetrical hysterectomy due to uncontrolled post partum hemorrhage, uterine atony, following prolonged obstructed labour and sepsis. The maternal mortality for unbooked patients was 16 out of 1056 and none among the booked. Perinatal mortality is 3 times less in booked patients. Higher perinatal deaths are associated with home deliveries. (Table No. II) Unbooked mothers had a higher proportion of maternal intensive care unit admissions and perinatal deaths compared with the booked. (Table No. II)

**Table 1:** Mean age and baby weight among booked and unbooked cases:

| Variables | Booked (n=1172) | Unbooked (n=1056) | P Value |
|---|---|---|---|
| Age of mother (Mean±SD) | 24.57±4.17 | 23.81±4.92 | <0.005 |
| Baby weight (Mean±SD) | 3.03±0.56 | 2.79±0.59 | <0.0001 |

**Table 2:** Maternal, perinatal and neonatal outcome among booked & unbooked mothers

| Variables | Booked % (n=1172) | Unbooked% (n=1056) | P value |
|---|---|---|---|
| Maternal outcome | | | |
| 1. Good | 100.00 | 96.6 | <0.05 |
| 2. Poor | 0 | 1.9 | |
| 3. Death | 0 | 1.5 | |
| Perinatal Outcome | | | |
| 1. Good | 97.3 | 80.3 | |
| 2. Poor | 2.7 | 8.7 | <0.05 |
| 3. Death | 0 | 11.0 | |
| Neonatal Outcome | | | |
| 1. Good | 99.3 | 95.5 | |
| 2. Poor | 0 | 0.4 | <0.05 |
| 3. Death | 0.7 | 4.2 | |

**Table 3:** Relation of Booked & Unbooked cases to different variables (n=2228)

| Variables | Booked (%) | Unbooked (%) | P Value |
|---|---|---|---|
| Distance | | | |
| 1. Near | 72.4 | 47.3 | <0.0001 |
| 2. Far | 27.6 | 52.7 | |
| Parity | | | |
| 1. Primigravida | 46.8 | 59.7 | |
| 2. Multigravida | 48.8 | 34.1 | <0.002 |
| 3. Grandmultigravida | 4.4 | 6.4 | |
| POG | | | |
| 1. Term | 84.6 | 57.6 | |
| 2. Preterm | 6.8 | 12.1 | |
| 3. Post term | 5.8 | 17.0 | <0.0001 |
| 4. Unknown POG | 2.7 | 13.3 | |
| Stage of labour | | | |
| 1. Latent | 70.0 | 58.7 | <0.05 |
| 2. Active | 30.0 | 41.3 | |
| Mode of Delivery | | | |
| 1. Normal | 65.5 | 55.9 | |
| 2. LSCS | 31.7 | 39.8 | <0.05 |
| 3. Instrumental | 2.7 | 2.7 | |
| 4. Cesarean Hysterectomy | 0 | 1.6 | |

POG: Period of Gestation, LSCS: Lower segment caesarian section

**Discussion**

Educating the community about the benefits of receiving regular antenatal care, at grass roots level may have a significant impact on improving pregnancy outcomes.[7]Currently, the Level of Care is diluted and many institutions at the periphery are not utilized at all. Bed management systems need to be developed and reviewed to optimise bed use. Focus group discussions revealed that filling the knowledge gap alone will not sufficiently address the problem of maternal death. Targeted, integrated, patient friendly, affordable, accessible services need to be delivered in an equitable manner. Increased public awareness of the need for and availability of these services would improve the outcomes for many women and children.

Antenatal care and its importance can be implemented through general and health education, improved public health status, developing infrastructure, transport and communication facilities. Respondents from both groups of mothers held that maternal health care delivery should be of three different degrees. Primary care should involve maternity homes and centers which should be staffed by trained midwives supervised by obstetricians. Secondary care should involve hospitals directed by obstetricians and capable of providing emergency services. Tertiary care should be available in University teaching hospitals promoting health care work training and research. Our research indicates that mothers in Nepal know about the importance of health care during pregnancy, but are currently not able to access it due to powerful circumstances beyond their control.

In our study we found that distance from hospital too had an affect on outcomes where even booked mothers reached hospital in late second stage of labour. We contend that planning to build bigger hospitals with sophisticated technology alone will not improve the maternal and fetal outcome. Rather, primary and secondary hospitals, built for a targeted population and supporting trained staff to work in primary facilities, may have an impact in reducing these preventable tragedies in Nepal. Government and Non Governmental Organisations as a priority in millennium development goals highlighted maternal healthcare.

This qualitative in depth focus group discussion with affected women revealed their rationale for not utilizing the minimum services available to them, though they need it the most. The affected populations unveil the area to be strengthened, if maternal and child healthcare is to be available to them.

- Distance from health services, hills and mountains, efficient transport to be organized
- High Cost(direct fees as well as the cost of transportation, drugs and supplies) subsidized
- Domestic activities restricted during pregnancy.
- Women should be given decision-making power within the family.
- Hospital personnel need to be educated to be more clients friendly.

**Conclusion**

Booked pregnancies had better maternal and perinatal outcomes .Focus group discussion and results elucidated that services utilization can be improved, fairly equipping peripheral health institutions.

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