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Research Article

The Status of Rural Reproductive Health and its Implications on Feto-Maternal Outcome at Tertiary Care Centre

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Abstract: The study was prospective analysis of the health status of unbooked emergency admission of antenatal & postnatal women at tertiary care setting, JLN Hospital & Research Centre, Bhilai. The condition on admission of all unbooked emergency antenatal and postnatal women, to department of obstetrics and gynecology, and their feto-maternal outcome were noted and analyzed. Among 2068 emergency unbooked admissions, 46.48% were from rural areas and rest from semi urban areas. 48.2% of cases were referred from private hospitals or primary health centre. Among referred cases 69.2% received services within 12 hours of referral as compared to 95.6% of cases who came directly. 82.85% had to arrange private means of transport while 15.71% had their own vehicle. Ambulance was provided for 1.42% of cases only. Maternal mortality ratio in our hospital was 4.69/1000 live birth. 44.44% deaths were within 24 hours of admission and direct causes were postpartum hemorrhage, eclampsia and septicemia. 20.6% perinatal deaths were due to prematurity followed by toxemia 4.6%. Delay in decision to seek care, to reach medical facility & to receive care at first health unit are the main causes of maternal & perinatal deaths.
Keywords: antenatal, postnatal, maternal mortality ratio, rural, urban, booked, unbooked.

INTRODUCTION

Health is not socially neutral. It carries profound implications for social justice. Pressures for health sector reform striving for equity have been steadily mounting worldwide to the extent that almost every country is conscious of exploring ways to provide equity and efficiency in the delivery of health care. Maternal death is a complex interplay of social, economic, educational and medical factors. India accounts for 20% of world's maternal death. Out of estimated 25 million deliveries occurring in our country each year, 18 million take place in peripheral areas, where maternal & perinatal services are either poor or nonexistent. The present strategy to prevent maternal & perinatal mortality focus on building a better and more fully functioning primary health care system from first referral level facilities to the community level. The present study is undertaken to evaluate antenatal care services in rural and semi-urban areas, awareness and utilization of services at various health centers, factors contributing towards delayed referral and management of unbooked and referred cases from rural and semi-urban areas; admitted as emergencies and their maternal and fetal outcome.

MATERIAL AND METHOD

The study was carried out on the basis of direct interview with the antenatal & postnatal cases of rural and semi-urban areas; admitted in emergency in JLN Hospital & Research Centre, Bhilai over a period of 18 months from 1st July 2009 to 31st December2011. JLN Hospital & Research Centre, Bhilai is 860 bedded multidisciplinary tertiary and referral hospital in Chhatisgarh, India. The condition at time of referral to the institute was noted from referral slip and/or by interview. The feto-maternal condition was followed till discharge. Rural and semi-urban antenatal cases with more than 28 weeks of gestation and postnatal cases, which were unbooked at JLN Hospital & Research Centre, Bhilai were included. Urban and booked patient attending regular antenatal clinics were excluded.

DISCUSSION

In this study maximum (90%) cases were of 15-30 years of age group which is similar to Limaye *et al.;* [1] study. Out of 2068 cases, 1054 (50.95%) were primigravida and 1014 (49.05%) multigravida.

1543 women (74.6%) were admitted as intrapartum case, whereas ante partum and postpartum

cases were 455 (22%) and 68 (3.3%) respectively (table 1). Sheela *et al.;* [2], reported amongst obstetric ICU admission, that 47%, 40% and 9% women were referred as ante partum, postpartum and intrapartum cases respectively. In Pragti et al [3] study 68.3% women were referred as ante partum case.

In this study 34.2% of admitted cases were illiterate, 39.33% were non-matriculate and 26.48% had done matriculation or higher education (table 1). In the study of Sarkar *et al.;* [4], it was 42%, 50% and 8% while in Ram & Dutta [5] study, it was 66.6%, 33.2% and 1.7% respectively.

In India 70% population are rural and they depends mainly on agriculture. Most women in India are house wife (in our study 89.5% of cases). It is similar to finding of Ram *et al.;* [5], in which 90% cases were housewife while in Kamat *et al.;* [6] study 70.7% cases were housewife. Among rest of cases, 5.9% were farmers, 4.3% were laborers and 0.3% had other occupation in our study (table 1).

In our study 18.86% cases had not a single visit during pregnancy. Nagdeve *et al*.; [7] reported it in 39% of cases. In present study, 41.8% cases belonged to Prasad scale IV and 27.71% to Prasad scale III (table 1). The study by Bhardwaj *et al.;* [8], reported 68.19% cases in Prasad scale IV & V. Socio economic condition has an influence over prenatal visits by woman during pregnancy. In general high social class mother attend prenatal clinics earlier and more often as compared to lower class. In our study, self-negligence was responsible for delayed admission in (821)39.7% of cases followed by lack of appropriate facilities which was seen in 27.3% of cases. 11.6% cases refused to come to a larger hospital. Monetary and transport problem were responsible in 9.6% and 5.0% cases respectively (table 1). In Maitra *et al.;* [9] study self negligence was responsible for delayed admission in 2.59%-4.8% of cases whereas the major causes were lack of equipments, anesthetic and blood banking facility at primary/community health centers (39.72% - 43.9%). Transport problem was responsible for delay in 14.63%-32.79% of cases.

In our study out of 2068 unbooked emergency admissions, 961 (46.48%) belonged to rural while 1107 (53.52%) were from semi-urban areas. In Narwadkar *et al.;* [10] study 80% referrals were from rural areas. 82.85% of cases arranged private means of transport while 15.71% had their own vehicles. Only 1.43% cases used ambulance and that too was provided by Railway hospital because JLN Hospital & Research centre is referral centre for railway hospital. Narwadkar *et al.;* [10] reported that 85.3% of cases arranged private vehicle and 3.7% had their own vehicle. Ambulance facilities were used by 11% of cases only. Economic and social progress in addition to services is needed for the success of various government schemes.

Table-1: Results of the study

Age (in years)	no.	%
15-19	57	2.76
20-24	1804	87.24
>30	207	10.02
Gravida	no.	%
Primi	1054	50.95
2^{nd} & 3^{rd}	876	42.38
$>4^{th}$	138	6.66
Gestational status	no.	%
Ante partum	455	22
Intrapartum	1545	74.70
Postpartum	68	3.30
Education	no.	%
Illiterate	707	34.2
1-5 class	165	8.00
6-9 class	648	31.33
≥10 class	548	26.48
Occupation	no.	%
Housewife	1851	89.50
Farmer	122	5.90
Laborer/other	95	4.60
Antenatal clinics	no.	%
Not attended	390	18.86
Attended	1678	81.14
Socioeconomic status (per capita income)	no.	%
>1600	148	7.14
1000-1599	384	18.57
500-999	573	27.71
200-499	864	41.80
<200	99	4.76
Reasons for delay	no.	%
Self negligence	821	39.71
Lack of facility	565	27.33
Refusal to come at larger hospital	240	11.62
Money	199	9.62
Undiagnosed	138	6.67
Transport	105	5.05

In India, 66% of deliveries take place outside the health institution. In the present study, 30.5% cases travelled <5kms whereas 44% travelled a distance between 5-15kms to reach our hospital. 21.33% and 4.28% of cases travelled between 16-50kms and >50kms respectively (table 2). Narwadkar *et al.;* [10] found that 75% of cases travelled 15-60kms and 25% travelled >60kms.

Table-2: Comparison between times taken by referred & direct admitted cases

Time(hours)	Referred n=996		Direct admission n=1072	
	no.	%	no.	%
½	0	0	185	17.28
1	0	0	231	21.51
>1-4	181	8.18	241	22.43
>4-6	179	7.98	124	11.58
>6-12	329	33	244	22.79
>12-24	220	2.13	39	3.68
>24-36	81	8.1	4	0.37
>36	6	0.59	4	0.37

45% of cases were referred as dystocia of labor. 2.7% and 6.8% cases were referred as obstructed labor and cephalopelvic disproportion, respectively. 0.4% of cases were referred as rupture uterus; it increased to 1% when they reached at JLN Hospital & Research centre. 9.4% of cases were diagnosed as hypertensive disorders of pregnancy (eclampsia 1.9%) (Table 3). In Pragati *et al.;* [3] study 35% of cases had hypertensive disorders of pregnancy.

At the time of admission, fetal distress and intrauterine fetal death were present in 11.2% and 0.57% of cases respectively (table 3). In Limaye *et al.*; [1] study it was 20% and 13.6% respectively. Narwadkar et al (2004) [10] reported fetal distress in 31.6% and fetal demise in 11.8% of cases. In present study Severe anemia (Hb<6 gm %) was present in 6.7% of cases. Bharadwaj *et al.;* [8] reported that 8.6% women had Hb between 5-7 gm percent. In Pragti *et al.;* [3] study 22% cases were severely anemic. It is evident that majority of cases could have been referred much earlier in antenatal period, so that many conditions could have been corrected and the remaining ones could have been managed at proper time improving maternal and fetal outcome remarkably.

Table-3: Diagnosis on admission

Diagnosis	no.	%
Pathology of labor	930	45
Pre-eclampsia & eclampsia	194	9.4
Previous caesarean section	175	8.5
Ante partum hemorrhage	33	1.6
Rupture of membrane	19	0.95
Malpresentation	76	3.7
Twin pregnancy	58	2.8
Premature rupture membrane	183	8.85
Bad obstetrics history	29	1.42
Medical disorders	28	1.33
Gestation diabetes	21	1
Fetal distress	232	11.23
Intrauterine fetal death	12	0.57
Congenital anomalies	10	0.50
Puerperal sepsis	27	1.3
Retained placenta	14	0.7
Postpartum hemorrhage+Shock	17	0.8
Septic peritonitis	6	0.3
Burst abdomen	2	0.1
Postpartum hemorrhage	2	0.1

Post operative complications (pyrexia, resuturing etc) were seen in 1.43% whereas sepsis and secondary postpartum hemorrhage in 1.7% and 0.57% of cases, respectively (table 4). Limaye *et al.;* [1] reported post operative complications in 2% and sepsis in 1.2% of cases. Maternal morbidity was much more than mortality. Though it could not be measured as accurately as mortality, presence of organ dysfunction/

failure, requirement of assisted ventilation, dialysis, multiple transfusion of blood and blood products and surgical interventions are all indicators of severe maternal morbidity. Morbidity was significantly more in unbooked cases because most of the patients were admitted late in labor after prolonged rupture of membranes, exhausted, dehydrated, infected, and suffered with earlier attempts of delivery while few cases were either interfered by or delivered by untrained personnel or Dais. In present study Induction was done in 42.2% of cases. Blood was transfused in 14.5% and intensive care was needed by 1.43% of cases. 55.5% of cases delivered vaginally and caesarean section was performed in 37.2% of cases. Emergency hysterectomy was done in 1.05% of cases. In Pragti *et al.*; [3] study emergency hysterectomy was done in 14.8% of cases.

Table-4: Maternal complications

Maternal morbidity	no.	%
Post operative complications	29	1.43
Sepsis	35	1.7
Secondary postpartum hemorrhage	12	0.57
Maternal mortality	no.	%
Ante partum	9	33.33
Postpartum	18	66.67
Causes of maternal mortality		
Direct cause	20	74
Postpartum hemorrhage	3	11.11
Eclampsia	6	22.22
Septicemia	11	40.74
Indirect cause	7	26
Heart disease	1	3.7
Jaundice	6	22.22
Time interval between admission & maternal death		
< 24hr	12	44.44
24-48hr	15	55.56

Table-5: Perinatal mortality (n=389)

Causes	Still birth(248)	Early neonatal deaths(141)	Total
Ante partum hemorrhage	25(6.5)	2 (0.52)	27 (7)
Abnormal Labor	0	15(3.9)	15 (3.9)
Cord complication	18(4.6)	0	18 (4.6)
Prematurity	52(13.4)	80(20.6)	132(34)
Post maturity	0	2(0.52)	2 (0.52)
Toxemia	31(8)	18 (4.6)	49(12.6)
Congenital anomaly	18(4.6)	0	18 (4.6)
Rupture uterus	19(4.9)		19(4.9)
Abnormal presentation	13(3.4)	2 (0.52)	15(3.9)
Placental insufficiency	40(10.3)		40(10.3)
Maternal disease	14(3.6)	2(0.52)	16(4.1)
Premature rupture of membrane	0	4 (1)	4 (1)
Fetal distress	0	15(3.9)	15 (3.9)
Unexplained	18(4.6)	0	18 (4.6)

Maternal mortality ratio (MMR) in our hospital during this period was 4.69/1000 live births. Out of 27 maternal deaths (among 2068 unbooked emergency admissions), 9 died ante partum (33.33%) and 18 postpartum (66.67%) (Table 4). In Limaye *et al .;* [1] and Rangnekar *et al.*; [11] study maternal death were 3 and 9 out of 250 and 217 unbooked cases, respectively. Maitra *et al.;* [9], reported 47.46% deaths in referral cases. Purandare *et al.;* [12] reported 23.3% ante partum, 73.3% postpartum and 3.3% intrapartum deaths in referred cases. He also reported MMR of 1.13/1000 live birth. In present study, 100% deaths were preventable. In India, 50% of the maternal deaths occur within 24 hours of delivery and untreated PPH patients have about 2 hours to prevent catastrophe. Many deaths can be prevented by early and proper antenatal care, avoidance of unwanted and repeated births, training of traditional birth attendants and refresher courses for village medical practitioners and timely availability of blood transfusion. PPH, eclampsia and septicemia were

direct cause of death in 11.11%, 22.22% & 40.74% of cases. Severe anemia was associated with 60% cases. 44.44% of deaths were within 24 hours of admission. Purandare *et al.;* [12] reported 80% deaths within 24 hours of admission. High maternal mortality ratio not only reflects inadequate health services but also a low standard of living and socio-economic status. Poor antenatal services, deliveries by untrained attendants, late referrals, lack of skilled staff at peripheral hospitals and social factors like poverty and illiteracy lead to various life threatening complications necessitating tertiary care.

Out of 2049 babies (1933 singleton + 58 twin pregnancy), 87.89% were live births which was 61.3% in Pragti *et al.;* [3] study. Rest 12.1% was stillbirth. Limaye *et al*.; [1] reported 203 live births out of 255 deliveries in his study.

Perinatal mortality during that period was 67.6/ 1000 births (389/5753 birth at JLNH). Out of it 36.1% were early neonatal deaths and 63.9% were stillbirth. Limaye *et al.;* [1] reported 72.2% stillbirths and 27.8% early neonatal deaths. In Das Lucy *et al.;* [13] retrospective study of referral hospital of Cuttack, perinatal mortality rate was 112.29/1000 birth among ubooked rural mothers. Apart from clinical causes, associated factors like low socio economic condition, illiteracy and poverty leads to lack of awareness regarding the health care system and thus contributes to perinatal mortality rate.

20.6% and 4.6% of the perinatal deaths were due to prematurity and toxemia, respectively. Abnormal labor and fetal distress each contributes to 3.9% of perinatal deaths. According to Das Lucy *et al.;* [13] study eclampsia and ante partum hemorrhage were responsible for 33.8% and 20.5% of still birth, respectively. Fetal distress was cause in 16.6% of perinatal deaths. Prematurity and toxemia formed the bulk of perinatal deaths in our study. These deaths could have been avoided by proper antenatal care of the mother, delivery by trained personnel, institutional deliveries and timely referrals. Perinatal mortality depicts the economic and health care progress of a country. It reflects maternal and child health and hence is a sensitive indicator of mother and child health care.

CONCLUSION

The healthcare delivery system still requires reform from grass root level to tertiary care centre to save mothers & babies. The delay in decision for seeking care due to socioeconomic reasons, delay in reaching healthcare service providers due to poor means of transport & bad roads and delay in receiving care at first health unit due to inadequate services were the main causes of maternal & perinatal deaths. To stop preventable maternal & perinatal deaths synchronized participation of community, healthcare providers and policy makers is needed.

REFERENCES

1. Limaye HR, Ghadiali MV, Sankholkar PC; Maternal fetal outcome in obstetrics. Emergency cases referred from rural area and recommendations to improve it. Journal of Obst & Gynae of India; 1982; 32: 520 -524.
2. Sheela CN, Arun Mhaskar, Rita Mhaskar; Critical care in Obstetrics – A three year review in a tertiary referral hospital. J Obstet Gynecol India; 2004; 54(2): 155 – 157.
3. Pragti Chhabra, Kiran Guleria, Narinder Kumar Saini,Kannan Tulip Anju,Neelam Bala Vaid; Pattern of severe maternal morbidity in tertiary hospital of Delhi,India,a pilot study. Tropical doctor, 2008; 38(4): 201-204.
4. Sarkar B, Mukhopadhyay AK; Safe motherhood – Appraisal of preresnt status in India. Journal of Obst & Gynae of India, 1995; 45: 149 -153.
5. Ram AK, Datta BK; Pregnancy wastage and assistance during delivery of the rural mothers – An analysis of survey data. Journal of Obst & Gynae of India, Aug 1977; 27(4): 588 -592.
6. Kamat GH; Dixit SB, Pal MN, Mora SY, Pinto A; Influences of MCHon rural Obstetrics. Journal of Obst & Gynae of India, April 1989; 392: 126 -129.
7. Dr. Nagdeve DA; Reprodutive Child Health in Rural India: Role of ANM. AIDS Care, 1988; 10(5): 571- 582.
8. Bharadwaj N, Badrul Hassa S, Zaheer M; Imamo Bano; Socio economic factors affecting weight gain in pregnancy. Journal of Obst & Gynae of India, 1990; 40: 327 – 330.
9. Maitra N, Nirmal Govinda, Maya Hazra; Utilization of referral services by a high risk pregnancy population. Journal of Obst & Gynae of India, 1994; 44: 365 -369.
10. Narwadkar Mangesh Vinayak, Sakhare Anil Panditrao, Mala Arun Ramkrishna; Critical Study of referrals in Obstetric emergency. J Obstet & Gynecol India, May/June 2004; 54(3):258 -259.
11. Aruna Rangnekar, Bandana Biswas; Maternal factors influencing perinatal morbidity & mortality. Journal of Obst & Gynae of India, 1990; 40:766 - 769.
12. Nikhil Purandare, Amarbaj Singh Chandock, Sangeeta Upadhya, Sanjanwala SM, Saraoji RM; Maternal mortality at a referral centre; A Five Year Study. J Obstet Gynecol India; 2007; 57 (3): 248 – 250.
13. Das Lucy, Satapathy Umakant, Panda Niharika; Perinatl mortality in a referral hospital of Orissa – 10 year review. J Obstet Gynecol India, 2005; 55(6): 517 -520.