

BIOSOCIAL CORRELATES OF PERINATAL MORTALITY IN RURAL LUCKNOW

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ABSTRACT

Six hundred and forty three consecutive pregnancies occurring between March to February, 90 in the Mohanlalganj community Development Block of Lucknow District, were registered during second trimester and followed-up till seven days after delivery, for study of perinatal mortality and related biosocial correlates. A total of 20 still births and 27 Neonatal deaths were recorded out of the six hundred forty nine newborns which included seven twins also. Overall Perinatal Mortality Rate was found to be 72.4 per thousand births. Perinatal Mortality was significantly high among twin deliveries (500 per thousand births), mothers aged below 18 and above 30 years (136.3 and 100 per thousand deliveries respectively), spacing less than 18 months (113.4 per thousand deliveries), Gestation age below 28 weeks (1000 deaths per thousand births) and among primipara (112.6 per thousand births).

INTRODUCTION

Perinatal mortality serves as the most sensitive index of the maternal and child health services. However, inspite of good MCH services, some perinatal mortality is inevitable due to certain biosocial factors of the mothers and newborns.

The present study was conducted to ascertain the incidence of perinatal mortality and to study the effect of certain biosocial correlates of mothers and newborns in determining the extent of perinatal mortality in Rural area of Lucknow District.

MATERIAL & METHODS

The study was carried out among all consecutive deliveries occurring in the Mohanlalganj Community Development Block of Lucknow District during March 89 to February 90. All these mothers were registered during Second Trimester of pregnancy and were followed at their homes till one week after delivery.

The PNM was studied in relation to certain biosocial correlates of the pregnant mothers such as outcome to pregnancy, sex of newborn, age of mother, parity, gestational age, social class, birth spacing and others.

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RESULT

A total of 642 deliveries occurred in the Community Development Block of Mohanlalganj during study period, 7 of them being twin deliveries, and 47 perinatal deaths (20 still births and 27 early neonatal deaths) occurred among 649 newborns. The association between certain selected biosocial factors and perinatal mortality are presented below.

The overall PNM was observed to be 72.4 per thousand live births, still birth rate and early neonatal death rate being 30.8 and 41.6 per thousand live births respectively in the study population. A very significantly high (500 per thousand LBs) PNM was observed among twins than singletons ($P < 0.001$) Table-I.

Table 1. Pregnancy outcome and perinatal mortality

Pregnancy outcome	No. of births	Perinatal deaths			Perinatal mortality per 1000 births
		Still births	Early neonatal deaths	Total	
Single	635	16	24	40	62.9
Twin	14	4	3	7	500.0
Total	649	20	27	47	72.4

$X^2 = 38.3 \quad P < .001$

A higher perinatal mortality (76.5/1000 live births) was observed among males than those of females

Table 2. Sex of newborn and perinatal mortality

Sex	No.	Still Birth	ENN Deaths	Total Deaths	PNMR/ 100 births
Male	299	11	12	23	76.5
Female	350	09	15	24	68.6
Total	649	20	27	47	72.4

(p .05)

(68.5/1000 live births), however, the difference was not found to be statistically significant (P < 0.05).

Table 3. Perinatal mortality in relation to mothers age.

Age in years (mothers)	No. of births	Perinatal deaths			PNMR per 1000 births
		Still births	Barly neonatal deaths	Total	
14-18	88	6	6	12	136.3
19-24	165	5	5	10	60.6
25-29	294	8	7	15	51.0
30-34	70	1	6	7	100.0
35 and above	32	0	3	3	93.7
Total	649	20	27	47	72.4

X² = 11.00 P < 0.05

The analysis of age of mothers revealed that perinatal deaths were significantly high and only those borne to mothers aged below 18 years than those aged 18 and above. It was significantly lower (51.5/1000 LBs) among those whose mothers' age

Table 4. Parity of women and perinatal mortality.

Parity	No. of births	Perinatal deaths			PNMR per 1000 births
		Still births	Barly neonatal deaths	Total	
I	142	8	8	16	112.6
II	121	1	3	4	33.0
III	97	3	1	4	41.2 41.5
IV	71	4	0	4	56.3 P<.05
V & above	218	4	15	19	87.2
128					
Total	649	20	27	47	72.4

X² = 11.00 P < 0.05

was between 19 to 29 years, in comparison to among those whose mothers were either below 18 years or 30 years and above (P<0.05)) Table 3.

It was observed that Perinatal mortality was higher (112.6/1000 births) among those whose mothers were primipara and lowest (33.0/1000 births) among those whose mothers were para second. A gradual rise in perinatal mortality was found with increasing parity after second. The difference between second and primi and second and subsequent parity was found to be statistically significant (P <0.02 and P< 0.05 respectively) Table 4.

A significantly higher (113.6/1000 births) perinatal mortality was observed among those born within one and a half years of previous delivery than those born afterwards (P<0.001) Table 5.

Table 5. Spacing and perinatal mortality.

Birth interval	No.	Still Birth	ENN deaths	Total deaths	PNMR /100 births
< 18 months	14	3	2	5	113.6
18-35 months	375	7	15	22	38.6
36 & + months	96	3	3	6	62.5
Total	485	13	20	33	64.08

(X² 58.1, df 2 - p < 0.001)

The perinatal mortality was found to be decreasing with increase in social status of mothers, It was highest (92.43/1000 births) among social class V and lowest (39.47/1000 births) among social class II, and the over all differences was found to be statistically significant (P< 0.05) Table 6.

The analysis of Perinatal mortality in relation to gestational age showed that all those born before 32 weeks of gestation were still born (Perinatal mortality 1000/1000 births). The chance of survival was significantly better (PNM, 46.4/1000 births) among those born between 37-40 weeks of gestation than those born either before 36 weeks (666.6/1000 births) or after 42 weeks of gestation (106/1000 births). The association between period of gestation and perinatal mortality has been highly significant (P< 0.001) Table 7.

Table 6. Social class and Perinatal Mortality

Class	No.	Perinatal death			PNMR/100 births
		Still birth	Neonatal death	Total	
I	0	—	—	0	—
II	76	1	2	3	39.4
III	152	5	2	7	46.0
IV	302	9	17	26	86.1
V	119	5	6	11	92.4
Total	649	20	27	47	72.4

(Z = 2.29, p < 0.05)

Table 7. Gestational age at delivery and perinatal mortality.

Gestational age (Weeks)	No. of births	Perinatal deaths			PNMR/ 1000 births
		Still birth	Early neonatal death	Total	
28-32	3	3	0	3	1000.00
33-36	18	2	10	12	666.00
37-41	581	15	12	27	46.4
42 & above	47	2	0	5	106.3
Total	649	20	27	47	72.42

X² = 134.96 P < .001

DISCUSSION

The perinatal mortality for the births occurring in study population is found to be 72.4 per thousand live births. While comparing the perinatal mortality observed in present study in Rural Community of Lucknow District with those of Chandra *et al*² (75.2 per thousand births) and Upadhyay *et al*³ (67.3 per thousand births) it appears to be stagnatory since last two decades. The present pattern also conforms to the observations of WHO (1982)⁴. The trend of perinatal mortality in India the present findings are higher than those of Shah *et al*⁵ and Mehta *et al*⁶ while it is comparatively lower than those of Mahapatra *et al*⁷ and Kapoor *et al*⁸.

Out of the certain selected biosocial factors affecting PNM, multiple pregnancy was found to be associated with very high PNM (500/1000 births) in present study. Higher PNM have also been reported by Mehdi *et al*⁹. Malik *et al*¹⁰ and Khurana *et al*¹¹ in twins

as compared to single births.

Though sex variation in mortality has been documented, stressing females to be biologically stronger, no significant difference was observed in the present study. Contrary observations have been reported by Butter *et al*¹² who found higher PNM among females while Agarwal *et al*¹³ reported higher PNM among males.

The PNM was found to be higher among those born to mothers of age group below 19 years and above 30 years. Shah *et al*⁵ and Rao *et al*¹⁴ have also observed maximum perinatal mortality among those born to mothers below 20 years of age. Bajpai *et al*¹⁵ (1966) reported higher PNM in extremes of parity which was also supported by the finding of Santhana Krishnan *et al*¹⁶ and Kumari *et al*¹⁷.

The PNM has been found to be significantly higher among those born to Primipara woman. Minimum PNM was observed among those born to multipara (Para second and third) followed by grand multipara. The findings of present study are in conformity with those of Mehdi *et al*⁹, Mahapatra *et al*¹⁷, Santhana Krishnan *et al*¹⁶ and Kumari *et al*¹⁷.

It has been observed that the shorter interval with previous birth, higher is the PNM, and the present study findings have largely supported the observation of Rao *et al*¹⁴ (1982). The highest PNM has been found among those with a spacing less than 18 months, however, Shah *et al*⁵ (1979) observed highest PNM among those born with spacing of less than 12 months.

The PNM was found to be inversely related with social class in the present study and an increasing PNM was observed with decline in social class. Similar findings have been reported consistently from the country and abroad by Butler *et al*¹², WHO and Mehta *et al*⁶.

Inverse relationship of PNM with gestational age has been observed in the present study conducted in rural area being cent percent mortality among those with gestational age less than 32 weeks followed by those 33-36 weeks and 42 and above, and the lowest among those with gestational age 37-41 weeks. This is in conformity with conclusion of Mehdi *et al*⁹, Butter

etal¹² (1963), Upadhy etal³, Malik etal¹⁰ Agarwal etal¹³ and Mahapatra⁷.

The persisting high perinatal mortality observed in present study, probably, reflects continuance of factors responsible for high perinatal mortality in this area and calls for immediate scrutiny by the health planners and all those engaged in health care development for removing the stagnation and evolving strategy for further reduction in perinatal mortality in Uttar Pradesh.

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