

INFANT MORTALITY IN A RURAL POPULATION OF MEERUT

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ABSTRACT

A cross sectional study was conducted in eight selected villages of Meerut District (U.P.) to find out infant mortality rate alongwith other various health care delivery practices associated with this. An infant mortality rate of 106.7/1000 LB was found in the study population. Infant mortality was higher in female infants, infants of mothers not availed antenatal care, not received tetanus toxoid, delivered by untrained personnel and where cow-dung was applied to cord stump. Among the causes of infant deaths prematurity or low birth weight was the commonest cause followed by respiratory infections, diarrhoeal diseases and tetanus neonatorum

INTRODUCTION

Since Independence the infant mortality rate in India has come down from 134 in 1945-50 to 80 per 1000 live births in 1992. The rate is not uniform throughout the country. It varies from one state to another and within the state there are variations between rural and urban areas and from one region to another.

There is need for assessment of infant mortality rate in various parts of the country to analyse the factor which are responsible for such variations in infant mortality which will facilitate better understanding of the problem and help in formulating a meaningful strategy to further reduce the infant mortality rate.

MATERIAL AND METHODS

A cross-sectional study was conducted in eight villages of Primary Health Centre Machhra, District Meerut (U.P.) selected by probability proportional to size sampling technique covering a population of about 21,000. Information was collected on a predesigned and pretested schedule by house to house visit from those families in which either a birth and an infant death had occurred during the last one year period (from 15th August 1991 to 14th August 1992). Information pertaining to infant was collected from the mother of the child. Infants were also physi-

cally examined wherever found necessary.

OBSERVATIONS

A total of 759 live births and 81 infants deaths were recorded in study population of 21,000 during the reference year accounting for a birth rate of 35.2 per 1000 population and an infant mortality rate of 106.7/1000 live births. Out of 81 infant deaths 44 died during neonatal period and rest 37 died during post neonatal period giving a neonatal, post-neonatal mortality rate of 57.9 and 48.7 per 1000 live births respectively.

Infant mortality rate was 156.4/1000 live births in females and 75.2/1000 live births in males. Post-neonatal mortality rate was about three times higher (85.0/1000 live births) in females than males (25.8/1000 live births) and neonatal mortality rate was 49.4 and 71.4/1000 live births in males and females respectively.

The impact of health care delivery on infant mortality was found to be statistically significant ($p < 0.001$) except in case of place of delivery ($P > 0.5$) as may be seen in Table No. 1.

A analysis of the causes of infant death provided in Table - II shows that prematurity or low birth weight was the leading cause accounting for 27.2% infant death. Other important causes were respiratory infections (24.7%), diarrhoeal diseases (17.3%) and tetanus neonatorum (12.38%).

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Table I. Infant Mortality in Relation to Health Care Services

Health Care Service	Live Birth	Infant Death		Test of Significance		
		No.	IMR	X ²	df	p
Antenatal Care						
Availed	594	34	57.2	70.2	1	< 0.001
Not availed	165	47	284.8			
Tetanus Prophylaxis						
Administrated	591	30	50.7	152.5	1	< 0.001
Not administered	168	51	303.5			
Place of Delivery						
Home	677	71	104.8	0.24	1	< 0.5
Institution/ Nursing Home	82	10	121.9			
Person Conducting Delivery						
Untrained Dai	21	5	238.0	41.7	3	< 0.001
Trained Dai	612	43	70.0			
Doctor	59	11	186.4			
Others	67	22	328.3			
Nature of Cord Dressing						
(i) Dressing done by						
(a) Cowdung	14	5	357.1	17.25	3	< 0.001
(b) Antiseptic Soln.	691	67	96.1			
(c) Others	21	6	285.7			
(ii) Not done						
	33	3	90.0			
Base	759	81	106.7			

Table - II Causes of Death

ICD CODE No.	Causes	Infant Death	
		No.	%
P07	Prematurity/LBW	22	27.2
J00-98	Respiratory infections	20	24.7
A09	Diarrhoeal disease	14	17.3
A33	Tetanus nenatorum	10	12.3
Q00-99	Congenital	3	3.8
T63* P15	Accidents	2	2.4
P21	Asphyxia neonatorum	2	2.4
G00	Meningitis	1	1.2
	Unknown	7	8.7
Total		81	100.00

DISCUSSION

Infant mortality rate in the present study was

106.7/1000 live births which is quite comparable to 105.0 reported by Mohan *et al*¹. This rate was lower than 172.4, 128.8 and 202.4/1000 live births reported by Sandel *et al*², Krishna *et al*³ and Bhandari *et al*⁴ respectively. On the other hand infant mortality rate in the present study was higher than 77.4 and 24.5/1000 live births reported by Kumar *et al*⁵. In this study infant mortality rate was 156.2/1000 live births for females as compared to males (75.2/1000 live births) whereas Shah and Udani⁶, Mohan *et al* and Shukla *et al*⁷ found a higher infant mortality in males. Higher females infant mortality in this study might be due to lack of care to female child as compared to male child. Infant mortality was also higher among infants whose mothers did not avail antenatal care (284.8/1000 live births) as compared to mothers who availed antenatal care (57.2/1000

live births). Similar observations were also made earlier by Shukla *et al*⁷. Infant mortality was much lower in mothers who received tetanus toxoid in antenatal period as compared to mothers who did not receive tetanus toxoid. Similar observations were also made earlier by Shukla *et al*⁷.

These findings emphasise that through promotion of antenatal tetanus immunization not only the mortality from neo-natal tetanus is reduced but also a significant reduction in overall infant mortality can be achieved. In this study it was observed that infant mortality rate was more in infants delivered in institution. A higher infant mortality in institutions/nursing homes might be due to the fact that most of the complicated cases would have been delivered in these institutions. Infant mortality was maximum in infants delivered by untrained hands such as relatives, neighbours and untrained dais. Also deliveries conducted by doctors, having high infant mortality might be due to the fact that only complicated cases were referred to doctors.

Among the causes of infant death prematurity or low birth weight topped the list. This observation is in conformity as observed by Shah and Udani⁶ while Shrinivasa *et al*⁸ and Bhandari *et al*⁴ found respiratory infections as the commonest cause of infant death. While the diarrhoeal diseases were the leading causes of infant mortality as reported by Kumar *et al*⁵ and Bhatnagar *et al*⁹. On the other hand Shukla *et al*⁷ found that commonest cause of infant death being tetanus neonatorum.

REFERENCES

1. Mohan, V., Singh, H., Singh, S. : An epidemiological survey of infant mortality. *Ind. J. Ped.*, 1974 XXXI (317) : 224.
2. Sandel, J., Upadhyaya, A.K., Mehrotra, S.K. : A study of infant mortality rate in selected group of population in District Gorakhpur. *Ind. J. Pub. Hlth.*, 1985 XXIX (1) : 37.
3. Krishna, G., Chandra, S., Srivastava, J.P., Agarwal, K.L. : Infant and early childhood mortality study in rural ICDS Project. *Ind. J. Comm. Health* 1988 IV (*) : 3.
4. Bhandari, S., Mandowara, S.L., Agarwal, H.R., Jagdev, D.K. High infant mortality in rural areas of Rajasthan: An analysis based on prospective study. *Ind. Ped.*, 1988 XXV : 510.
5. Kumar, V. Dutta, N., Saini, S.S. : Infant mortality in rural community development block in Haryana. *Ind. J. Ped.*, 1982 XXXIX (40) : 795.
6. Shah, S.M., Udani, P. : Analysis of the vital statistics from the rural community Pal Ghar, II perinatal, neonatal and infant mortalities. *Ind. Pd.*, 1969 VI(10) : 651.
7. Shukla, R.N., Narayan, V., Indris, M. Bhushan, U. and Malik, G.K. : Infant mortality in rural areas - An etiological study. Lucknow University, 1981.
8. Shrinivasa, D.K., Danabalan, D.M., Anand, D. : Infant mortality trends in a rural health center of Pondicherry. *J. Ind. Med. Assoc.*, 1974. XXXXXII (2) : 39.
9. Bhatnagar, M., Gupta, S.C., Mishra, V.N. Garg, S.K., Bajpai, S.K. : Demographic profile with special reference to infant mortality in urban and rural area. *Jr. Med. & Surg.*, 1982 21 : 17-19.
10. National child survival and safe motherhood programme. "Training Module on programme Intervention", Ministry of Health and Family Welfare, New Delhi, 1992.