RURAL—URBAN DIFFERENCES IN BIRTH WEIGHT DISTRIBUTION

By

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SUMMARY

Two thousand two hundred ninety two singleton live births over two year period, at a rural project hospital were analysed to determine factors of importance in birth weight distribution in both urban and rural newborns. The mean birth weight of urban newborns was 2731 grams (S.D. 447) and of rural newborns was 2669 grams (S.D. 465). Place of residence, sex of the newborn, parents' education, maternal age, parity and utilisation of antenatal care facilities were found to influence birth weight distribution in both urban and rural areas. Multiple regression showed that of these factors, parity in the urban newborns and the utilisation of antenatal care facilities by the mothers of the rural newborns were the most important factors determining birth weight in the urban and the rural areas, respectively.

Introduction

Birth weight patterns reflect the pre-pregnancy and pregnancy nutritional status of the mother which in turn is mostly influenced by the socio-economic status of individuals and communities. Hence, birth weight is considered as an important social indicator.

The size of the baby at birth is dependant on a number of genetic and environmental factors (Rao and Inbaraj, 1982). Factors like the sex of the baby, place of residence, maternal literacy status, maternal age, parity and antenatal care have been commonly postulated to affect birth weight (Roo and Inbaraj, 1982; Oni, 1986). Most of the environmental factors determining birth weight are within man's control and attention to them would reduce the incidence of low birth weight in the community and help to increase the newborn's weight.

The present study was undertaken as data on the effect of many socio-biological variables on birth weght distribution in our country is inadequate. It is essential that health planners have access to this information as it would enable them to augment the existing maternal and child health services in the country.

Material and Methods

Records of 2292 singleton live births over a two year period (1985-1987) at the Comprehensive Rural Health Services Project Hospital at Ballabgarh in Haryana, were analysed to determine birth weight distribution. This 60 bed hospital

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The newborns were categorised into two groups, based on their parents' place of residence—Urban and Rural. The data was analysed by both bivariate and multivariate analysis. Multivariate analysis was done utilising the multiple regression model in order to determine the factors having the maximum influence on the birth weight.

Observations

74.5% (1707) of the newborns were from an urban background, while 25.5% (585) had a rural background. The mean birth weight of the urban newborns was 2731 grams (S.D. 447), while the same was 2669 grams (S.D. 465) in case of rural newborns. The difference in the mean birth weight was found to be statistically significant (F—8.171; $p < 0.01$).

Sex differences showed that the urban male newborns had the best mean birth weight (Table I).

Newborn of graduate fathers had the best mean birth weight in both the urban and rural areas (Urban—2887 ± 403 grams; Rural—2746 ± 352 grams). Graduate mothers also produced heavier babies in both urban and rural areas. The mean birth weight of newborn of urban graduate mothers was 2784 ± 502 grams, while it was 2755 ± 321 grams in case of rural graduate mothers.

Maternal age was also seen to influence birth weight in both the urban and rural areas (Table II). Parity was also found to be a determinant of birth weight in both groups. Similarly, utilisation of antenatal care facilities also influenced birth weight in both areas. Utilisation of these services made a difference of 150 grams in the mean birth weight.

TABLE I

Relation Between Sex and Mean Birth Weight Distribution

Sex	Urban Newborn (gms.)	Rural Newborn (gms.)	All Newborn (gms.)
Male	2782 ± 451	2687 ± 471	2759 ± 458
Female	2673 ± 434	2650 ± 458	2667 ± 441
Total	2731 ± 447	2669 ± 465	2715 ± 453

TABLE II

Relation Between Maternal Age and Mean Birth Weight Distribution

Maternal Age (in years)	Urban newborn		Rural newborn	
	% Freq.	Mean birth (wt. (gms)	% Freq.	Mean birth (wt. (gms)
1. < 19	7.4	2613 ± 426	12.1	2525 ± 379
2. 20-24	52.6	2702 ± 435	50.3	2672 ± 473
3. 25-29	30.8	2780 ± 451	26.1	2696 ± 477
4. 30-34	7.2	2816 ± 499	8.9	2760 ± 448
5. >35	2.0	2886 ± 436	2.6	2707 ± 555
Total	100.0	2731 ± 447	100.0	2669 ± 465

TABLE III

Relation Between Parity and Mean Birth Weight Distribution

Parity levels	Urban newborn		Rural newborn	
	% Freq.	Mean birth wt. (gms)	% Freq.	Mean birth wt. (gms)
1. Primipara	29.6	2604 ± 427	38.6	2545 ± 417
2. Second para	34.0	2728 ± 439	29.1	2752 ± 465
3. Third para	24.8	2815 ± 443	18.5	2765 ± 466
4. Fourth para	7.3	2919 ± 424	8.5	2764 ± 511
5. Fifth para	2.5	2843 ± 445	2.9	2688 ± 494
6. Sixth para and above	1.8	2820 ± 508	2.4	2600 ± 599
Total	100.0	2731 ± 447	100.0	2669 ± 465

Multiple regression showed that among the variables considered, parity followed by paternal literacy and the sex of the newborn (with antenatal care as the fourth important factor) were the most important determinants in the urban newborns, while utilisation of antenatal care facilities followed by paternal literacy and parity were the most important determinants of birth weight among the rural newborn. Maternal literacy and maternal age were less important determinants in both categories.

Discussion

Bivariate analysis of data showed that place of residence of the parents, sex of the newborn, paternal and maternal literacy, maternal age, parity and utilisation of antenatal care facilities had an influence on birth weight patterns in both urban and rural areas. Our results show that the utilisation of antenatal care facilities had an influence in the positive direction, especially in the rural areas. Only a few studies have tried to relate birth weight with antenatal care (Das *et al*, 1981).

Multiple regression analysis showed that contrary to popular belief, maternal age and maternal literacy were less important determinants of birth weight, in both the urban and the rural areas. Parity and paternal literacy were more important determinants. The effects of paternal literacy on birth weight has never been reported earlier. This may be important because the males dominate in the family sphere in our society, and may have a strong influence on the health attitudes and practices of the family. This does not mean that the mother is not important. It should be realised that the mother should always remain the primary focus for child health and well being. Since, paternal literacy was also found to be important, action should be initiated to get the fathers to play a more active role in child survival and well being.

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