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RESEARCH ARTICLE

LOW BIRTH WEIGHT OF INFANTS IN RELATION TO VARIOUS BIO-SOCIAL VARIABLES

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Abstract

The birth weight of an individual is the most important determinant of a baby's chances of survival and development. UNICEF, WHO and the Govt. of India have estimated prevalence of low birth weight in India to be around 30 percent. The study was conceived with the objective of assessing various bio-social variables that leads to low birth weight in infants. Sixty mothers of low birth weight babies, within a period of one week after delivery from Ernakulam and Alapuzha districts were chosen as sample using purposive sampling method. Semi structured Interview schedule was administered to elicit information on personal profile, weight gain of mother, dietary pattern and stress faced during pregnancy. The dietary pattern was assessed by availing details regarding the frequency of consumption of each food item. The stress of mothers was assessed by a scale developed Suhany and Raj. The study helped to find out the bio-social variables that lead to low birth weight in selected sample.

Introduction

Background

The period of intra uterine growth is one of the most vulnerable periods in the human life cycle. Low Birth Weight leads to an impaired growth of the infant with its attendant risks of a higher mortality rate and impaired mental development. (Rao et al., 2001) Low Birth weight is a strong predictor for size in later life because such infants seldom catch up to normal size during childhood. Further more, low birth weight is associated with a number of adverse developmental, educational and behavioural outcomes in childhood, adolescence and later life. (Mc Avoy et al., 2006). Low Birth Weight babies are more likely to develop cardio vascular disease and diabetes in adulthood (Barker et al., 2001).

Methodology

A semi structured interview schedule prepared by the investigator was used to collect data. The tool elicited information regarding various bio-social determinants. Dietary pattern was recalled with the aid of food frequency table. Sixty Mothers having low birth weight babies were selected from the hospitals with the help of administrators.

Data collected for the study were compiled and subjected to statistical analysis on computation of percentages and Coefficient of Correlation.

Results and Discussion

Table: 1
Occupational status of parents

Particulars	Father % N=60	Mother % N=60
No occupation		53.3
Government Employee	5.0	3.3
Private sector	18.3	10.0
Self employed	1.7	1.7
Unorganized sector	75.0	31.7
Total	**100**	**100**

All fathers have occupation where as 53.3 percent of mothers are home makers. Five percent of fathers and 3.3 percent of mothers are government employees. Private sector job is the source of income for 18.3 percent of fathers and 10 percent of the mothers. 1.7 percent of both fathers and mothers are self employed. 75 percent of fathers and 31.7 percent of mothers work in unorganized sector. Socio-economic status is typically measured according to occupational status. A well established relationship exists between socio-economic status and low birth weight. Income inequality is associated with low birth weight as furnished by Mc Avoy et al. (2006).

Table: 2
Weight gain of mothers during pregnancy

Average Weight gain	Frequency	Cumulative Percent	Coefficient of Correlation
04.00	1 (1.7)	1.7	
05.00	1 (1.7)	3.3	
06.00	2 (3.3)	6.7	
07.00	10 (16.7)	23.3	
08.00	25 (41.7)	65.0	0.311**
09.00	15 (25.0)	90.0	
10.00	2 (3.3)	93.3	
11.00	3 (5.0)	98.3	
12.00	1 (1.7)	100.0	
Total	**60 (100.0)**		

Figures in parenthesis show percentage ** Significant at 0.05% level

Above table depicts that coefficient of correlation is significant at 0.05 percent level. The study revealed that most of the mothers have not gained adequate weight during pregnancy. According to Taffel (1986), the amount of weight gain and energy intake during pregnancy are closely related to low birth weight. Such poor weight gain as reported by Siega-Riz et al. (1994) and Abrams et al. (1989) will reduce the gestational weight gain and increase the risk of babies with small for gestational age (SGA) and preterm delivery.

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Table: 3
Diet consumed by mother during pregnancy

Food Item	**Frequency of food consumed**							**Mean score**	**Standard scores for 60 cases***			
	Daily	3 w/k	2 w/k	1 w/k	1 month	Never	N		54 Well Ade.	48 Fairly Ade.	42 Ined.	36 Totally Inade.
Cereals	60						60	60	√			
Pulses	32	22	6				60	53.2		√		
GLV			21	32		7	60	33				√
Roots & Tubers	2	9	2	10	12	25	60	33.2				√
Other veg.	34	16	6	2		2	60	51.6		√		
Fruits	33	12	10	4		1	60	50.4		√		
Milk & Milk Products	60						60	56.8	√			
Sugar	60						60	60	√			
Oils & Fats	60						60	60	√			
Meat & Meat products	30	2	8	18		2	60	41.6			√	
Miscellaneous	2	26	30	2			60	35.6				√

*Standard scores for 100 cases-90, 80,70 and 60 respectively.

As per the above table, cereals, milk, sugar and fats and oil consumption was well adequate which availed the score 54. Score 48 for pulses, other vegetables and fruits revealed fairly adequate eating pattern. Meat and meat products scored 42 which portrayed an inadequate consumption. A totally insufficient score of 36 was obtained by green leafy vegetables, roots and tubers and miscellaneous food items. The overall food consumption pattern was seen to be inadequate. The present finding is agreeable with the observation by Jackson et al (2003) and WHO (2002) that inadequate maternal nutrition during pregnancy contributes to the development of low birth weight.

Table: 4
Stress faced by mother and birth weight of baby

No. of factors encountered	**Frequency**	**Cumulative Percent**	**Coefficient of Correlation**

3	3 (5.0)	5.0	
4	9 (15.0)	20.0	
5	9 (15.0)	35.0	
6	9 (15.0)	50.0	-0.482
7	12 (20.0)	70.0	
8	10 (16.7)	86.7	
9	7 (11.7)	98.3	
10	1 (1.7)	100.0	
Total	**60 (100.0)**		

Figures in parenthesis show percentage ** Significant at 0.01% level

The table shows a negative correlation coefficient(-0.482) which is highly significant. The present finding is supported by the observation of Gabbard (1992) that expectant mother's stress can be transmitted to the foetus. As per Berk (2003) mothers who had experienced prolonged stress were at risk of a wide variety of difficulties including low birth weight.

The statistical data reveals the fact that, the incidence of low birth weight infants is at an increase. Most of the women may not be well aware of the risk factors leading to low birth weight.

In the current scenario, all women are exposed to multiple factors that may have detrimental effects on the baby. The study bestows light on various determinants affecting birth weight of baby and hence mothers can be enlightened on taking additional care. A paradigm shift from efforts to improve size at birth to efforts to improve foetal growth and development might provide fresh insight into the problem.

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