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SOCIOECONOMIC STATUS OF PREGANANT MOTHERS: EFFECT ON NEONATAL ANTHROPOMETRY

Meghali Joharapurkar[1] **& Rekha Sharma**[2]

1 Department of Food and Nutrition, Sevadal Mahila Mahavidyalaya, Nagpur
2 UGC- Human Resource Development Centre,
Rashtrasant Tukadoji Maharaj, Nagpur University, Nagpur.
Email ID: jmeghali@gmail.com

ABSTRACT

Pregnancy is one of the most critical and unique period in a women's life cycle. The critical place that pregnancy occupies in the chain of life has health and social importance for individuals, families and society as a whole. The study was carried out in the Private Maternity Hospitals (PMH) and Government Medical Hospitals (GMH), Nagpur, Maharashtra, India. About 285 and 215 pregnant mothers in the third trimester were selected from PMH and GMH using purposive sampling. The demographic profile of subjects was collected through questionnaire- cum- interview schedule. The anthropometric measurements viz., birth weight, crown heel length, head circumference, chest circumference and mid upper arm circumference were measured by standard techniques. The results of the study showed that monthly income ($r = 0.219$, $p < 0.01$; $r = 0.225$, $p < 0.01$), per capita income ($r = 0.164$, $p < 0.01$; $r = 0.201$, $p < 0.01$) and husband's age ($r = 0.125$, $p < 0.05$; $r = 0.155$, $p < 0.05$) of PMH and GMH mothers showed significant correlations with birth weight of infants. PMH mothers age ($r = 0.141$, $p < 0.05$) and GMH mothers education ($r = 0.169$, $p < 0.05$) and husbands education ($r = 0.185$, $p < 0.01$) showed negligible but positive and significant correlations with birth weight of infants. The results reveal that socioeconomic status plays an important role in determining nutritional status of the mothers and health of the newborns.

Keywords: Pregnancy, Socio economic status, Birth weight, neonatal anthropometry.

INTRODUCTION

Pregnancy is one of the most critical and unique period in a women's life cycle. The critical place that pregnancy occupies in the chain of life has health and social importance for individuals, families and society as a whole. Scientific evidence proved that the nutritional status of the mother significantly influence the course and outcome of pregnancy. Socio economic status of the families also plays a crucial role in determining the health status of

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the newborn (Mathuravalli, *et al.,* 2001).

Maternal nutrition and health is considered as the most important regulator of human foetal growth. Improved maternal nutrition has been associated with increased foetal growth and a reduction in adverse birth outcomes in developing countries and in populations with nutrient deficiencies (Fall, *et al.*,2003). However, if women are not well nourished, they are more likely to give birth to weak babies resulting in high infant mortality rate (Subarnalata and Basumati, 2006). Socio-economic status of the families plays a crucial role in determining the pregnancy outcome. (Vijaylaxmi and Urooj, 2009). In view of the above, the present study was undertaken to assess the influence of socio-economic status of pregnant mothers on neonatal anthropometry.

MATERIALS AND METHODS

The study was carried out in the Private Maternity Hospitals (PMH) and Government Medical Hospitals (GMH), Nagpur, Maharashtra, India. 285 PMH and 215 GMH pregnant mothers in the third trimester were selected on the basis of purposive sampling. The demographic profile of subjects was collected using questionnaire- cum- interview schedule. The anthropometric measurements of neonates viz., birth weight, crown heel length, head circumference, chest circumference and mid upper arm circumference were measured by standard techniques (Jelliffe, 1966).All the measurements were taken within 24 hours after the birth. Data was collected and analyzed using percentage, mean, standard deviation and Pearson's correlations coefficient.

RESULTS AND DISCUSSION

Socio-Demographic Profile: The distribution of respondents on the basis of socio-demographic characteristics is presented in Table 1. Table shows that a majority of PMH pregnant women (43.86%) were in the age group of 25-30 years whereas GMH (55.35%) were in the age group of

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20-25 years. The mean age of PMH women was found to be 26.26 ± 3.66 years whereas GMH was found to be 24.43 ± 3.24 years. The mean age of PMH women's husband was 31.39 ± 4.16 years and that GMH women's husband was 29.76 ± 3.55 years. A majority of pregnant women in PMH and GMH got married in 20-25 years of age. A majority of pregnant women of PMH (44.91%) and GMH (40.47%) belonged to nuclear family. About 52% pregnant women of PMH had small family size whereas about 48% of pregnant women of GMH had 4-6 members in the family. 48.77% and 28.42% pregnant women of PMH were graduate and post-graduate respectively whereas 58.14 % and 17.21 % of pregnant women of GMH had education up to SSC and HSSC respectively. 50.18 % and 22.11% husbands of pregnant women of PMH were graduate and post graduate whereas 58.14% and 19.53% of husband of GMH women had education up to SSC and HSSC respectively. About 68% of husbands of pregnant women of PMH were engaged in service whereas that of 51% husbands of pregnant women of GMH was labourers. A majority of pregnant women of PMH (92.98%) and GMH (91.16%) were housewives. The mean monthly per capita income of pregnant women of PMH was found to be Rs. 2974.45 ± 1963.43 whereas for pregnant women of GMH it was found to be Rs. 678.60 ± 554.25.

Maternal Socio Demographic Status and Neonatal Anthropometry

The correlation coefficient was computed between socio-demographic parameters and neonatal have been presented in Table 2.

Family Size and Neonatal Anthropometry

PMH mothers showed positive and significant correlation between family size and chest circumference ($r = 0.119$, $p < 0.05$) and mid upper arm circumference ($r = 0.157$, $p < 0.01$) of newborns. None of the anthropometric measurements of GMH babies showed significant correlation with the size of family.

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Father's Age and Neonatal Anthropometry

Father's age showed positive and significant correlation with birth weight (r = 0.125, p < 0.05), head circumference (r = 0.153, p < 0.05) and mid arm circumference (r = 0.164, p < 0.01) of infants of PMH mothers. GMH group showed low positive and significant correlation between fathers age and birth weight of neonate (r = 0.155, p < 0.05).

Mother's Age and Neonatal Anthropometry

The Table 2 indicates positive and significant correlation between mother's age and birth weight (r = 0.141, p < 0.05) and mid upper arm circumference (r = 0.200, p < 0.01), of newborn of PMH mothers. In case of GMH group all the neonatal anthropometric measurements showed insignificant correlations with mother's age. Bisai *et al.* (2006) reported that maternal age (r=0.119, p<0.05) was significantly and positively correlated with birth weight.

Father's Education and Neonatal Anthropometry

Father's education showed negative and significant correlation with chest circumference (r = -0.117, p < 0.05) and mid upper arm circumference (r = -0.120, p < 0.05), of newborn of PMH group. Father's education was found to be positively and significantly correlated with birth weight (r = 0.185, p < 0.01), head circumference (r = 0.174, P < 0.05) and mid upper arm circumference (r = 0.197, p < 0.01) of GMH group).

Mother's Education and Neonatal Anthropometry

GMH mother's education showed positive and significant correlation with birth weight (r = 0.169, p < 0.05), head circumference (r = 0.159, p < 0.05) and mid upper arm circumference (r = 0.165, p < 0.05). Whereas PMH mothers education did not show any significant correlations with neonatal anthropometry. Shrivastav and Shrivastav 2013 reported a significant association between maternal education and LBW.

Monthly Income and Neonatal Anthropometry

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Table 2 showed monthly income had a low positive and significant correlation with birth weight (r = 0.219, p < 0.01) whereas positive and significant correlations with head circumference (r = 0.168, p < 0.01) and mid upper arm circumference (r = 0.178, p < 0.01) of PMH neonates. Monthly income had a low positive correlation with birth weight (r = 0.225, p < 0.01), head circumference (r = 0.209, p < 0.01) and negligible correlation with mid upper arm circumference (r = 0.167, p < 0.05) of GMH neonates.Parvathi and Begum (2007) also reported the significant association between income and birth weight of neonates. Shrivastav and Shrivastav 2013 also reported a significant association between monthly income and LBW.

Per Capita Income and Neonatal Anthropometry

Table 2 reveals that per capita income had a positive and significant correlation with birth weight (r = 0.164, p < 0.01) of PMH neonates. Monthly per capita income had a low positive correlation with birth weight (r = 0.201, p < 0.01) and head circumference (r = 0.204, p < 0.01) had low correlation with mid upper arm circumference (r = 0.176, p < 0.05) of GMH neonates.

CONCLUSION

The present investigation conclusively showed significant associations between socio economic factors and neonatal anthropometry. Socio economic status and augmentation are the key components of good pregnancy outcome and thus there is an urgent need to provide special nutritional inputs and better monitoring facilities during pregnancy to such under nourished mothers. Thus there is a strong need to provide education to mothers and even to adolescent girls to increase the nutritional awareness and knowledge to inculcate appropriate dietary practices. The inclusion of locally available nutrient dense food in their daily diet must be promoted since low birth weight of infant in India has been attributed to wide spread maternal under nutrition.

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Table 1: Distribution of respondents on the basis of Socio-demographic characteristics

Sr. No	Respondent	Categories	Pregnant Women (PMH) N=285		Pregnant Women (GMH) N=215	
			No	%	No	%
1	**Age (Y)**	< 20	2	0.70	1	0.47
		20-25	102	35.79	119	55.35
		25-30	125	43.86	74	34.42
		< = 30	56	19.65	21	9.77
2	**Age of Husband (Years)**	< 25	4	1.40	8	3.72
		25-30	93	32.60	86	40
		30-35	114	40.00	96	44.65
		35-40	67	23.51	18	8.37
		Above 40	7	2.46	7	3.26
3	**Age of Marriage**	Below 20	15	5.26	51	23.72
		20-25	175	61.40	146	67.91
		25-30	86	30.18	17	7.91
		30-35	8	2.81	1	0.47
		Above 35	1	0.35	0	0
4	**Type of Family**	Nuclear	128	44.91	87	40.47
		Nuclear + 1 Dependent	28	9.82	40	18.6
		Nuclear + 2 Dependent	67	23.51	44	20.47
		Joint	62	21.75	44	20.47
5	**Family Size**	1-3	149	52.28	102	47.44
		4-6	113	39.65	105	48.84
		7-9	20	7.02	07	3.26
		Above 9	3	1.05	01	0.47
6	**Education of Pregnant Women**	Illiterate	1	0.35	8	3.72
		Up to Primary	0	0.00	3	1.4
		Up to SSC	31	10.88	125	58.14
		Up to HSSC	33	11.58	37	17.21
		Graduate	139	48.77	35	16.28
		Post Graduate	81	28.42	7	3.26
7	**Education of**	Illiterate	01	0.35	6	2.79

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	Husband					
		Up to Primary	01	0.35	4	1.86
		Up to SSC	37	12.98	125	58.14
		Up to HSSC	40	14.04	42	19.53
		Graduate	143	50.18	28	13.02
		Post Graduate	63	22.11	10	4.65
8	**Occupation of Husband**	Labour	0	0.00	110	51.16
		Farmer	3	1.05	15	6.98
		Business	88	30.88	31	14.42
		Service	194	68.07	59	27.44
9	**Occupation of Pregnant Women**	Housewife	265	92.98	196	91.16
		Working	20	7.02	19	8.84
10	**Per Capita Income**	< 500	12	4.21	119	55.35
		501-1000	35	12.28	71	33.02
		1001-1500	33	11.58	10	4.65
		> 1500	205	71.93	15	6.98

Table 2. Correlation Coefficient between Maternal Socio Demographic Profile and Neonatal Anthropometry

Socio-demographic Profile	**Groups**	**Birth Weight (BW) (kg)**	**Crown Heel Length (CHL) (cm)**	**Head circumference (HC) (cm)**	**Chest Circumference (CC) (cm)**	**Mid Upper Arm Circumference (MUAC) (cm)**
Family Size	PMH	0.098	0.060	0.109	0.119*	0.157**
	GMH	-0.025	-0.040	-0.015	0.079	-0.091
Father's Age	PMH	0.125*	0.096	0.153*	-0.002	0.164**
	GMH	0.155*	-0.004	0.057	0.055	0.077
Mother's Age	PMH	0.141*	0.088	0.106	-0.002	0.200**
	GMH	0.016	-0.105	-0.012	-0.006	-0.032
Father's Education	PMH	-0.054	-0.093	-0.096	-0.117*	-0.120*
	GMH	0.185**	0.089	0.174*	-0.114	0.197**
Mother's Education	PMH	-0.059	-0.057	-0.031	-0.094	-0.013
	GMH	0.169*	0.124	0.159*	0.001	0.165*
Monthly Income	PMH	0.219**	0.116	0.168**	0.115	0.178**
	GMH	0.225**	0.087	0.209**	-0.003	0.167*
Per Capita Income	PMH	0.164**	0.069	0.084	0.046	0.058
	GMH	0.201**	0.100	0.204**	-0.038	0.176*

*p< (0.05), **p< (0.01)

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