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Influence of Maternal Factors on Mode of Delivery and Birth Weight in Urban Pregnant Women

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ABSTRACT Pregnancy is one of the most critical and unique period in a woman's life cycle. The present longitudinal study was undertaken to assess the influence of certain factors on mode of delivery and birth weight in urban pregnant women visiting hospitals for regular ANC check-up. The sample size included 100 pregnant women. Information was collected on age, type of family, education, income, parity, medical history, obstetric history, meal pattern and morbidity status by personal interview method using questionnaire. Mode of delivery was noted using hospital records. Birth weight of neonates was taken within two days of birth. Majority of the subjects (82%) were using mixed type of diet. non vegetarians. Fever was the most common ailment reported. The influence of the factors like maternal age and parity on mode of delivery and also the influence of maternal age and birth weight were found to be non significant. Significant association was observed between maternal age and the body mass index ($p > 0.05$). The study revealed that the basic nutrition education is very essential for women in order to maintain a normal body mass index during the prime child bearing age.

INTRODUCTION

Pregnancy is one of the most critical and unique period in a woman's life cycle. It is regarded as 'welcome event' for successful womanhood. Data from NNMB show that a significant percentage of adult women in the reproductive period are at high risk with increased likelihood of obstetric complications and low birth weight offspring. Despite improvements in life expectancy, percent reduction in infant mortality and child mortality over the years, there is high proportion of low birth weight infants (Kharade and Antony 2002).Further low birth weight babies tend to become insulin resistant and likely to develop insulin resistance syndromes, diabetes, hypertension and abnormal blood lipids in the later part of their life (Thame et al.1997). Mode of delivery and birth weight are considered as one of the important and reliable parameters in the evaluation of pregnancy and neonatal well being. A number of factors influence the pregnancy outcome such as age of mothers, educational status, food habits, earlier reproductive performance etc. Hence, the present longitudinal study was undertaken to know the influence of certain factors on mode of delivery and birth weight.

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MATERIALS AND METHODS

A total of 100 pregnant women visiting private and Government Hospitals of Bangalore urban were selected on the basis of their willingness to participate in the study. The information on age, type of family, education, income, parity, family medical history, previous obstetric history, dietary habits, and morbidity status etc. were collected by using personal interview method. The measurements for height and weight of the pregnant women were taken as per the standard procedures. The body mass index was calculated using the standard formula. The birth weight of the infants was taken recorded in hospital within two days. Mode of delivery was noted from hospital records.

RESULTS AND DISCUSSION

More number of women in the study group were in the young, in the prime reproductive period age category. i.e.< 22 years of age (37%) followed by >25 years (32%). Maximum women belonged to Hindu religion (98%). Majority of women were

living in joint family system (54%) and studied upto SSLC only.The monthly family income was about Rs.4,000/- in majority of women (46%) in the present study population (Table 1).

Table 1: Classification of respondents by characteristics

Characteristics	*Category*	*Respondents*	
		Number	*Percent*
Age group	< 22 years	37	37.0
	23-25 years	31	31.0
	>25 years	32	32.0
Religion	Hindu	98	98.0
	Christian	2	2.0
Type of Family	Nuclear	46	46.0
	Joint	54	54.0
Education	< SSLC	54	54.0
	PUC	21	21.0
	Graduation	25	25.0
Income	<Rs4000	46	46.0
	Rs4000-8000	33	33.0
	>Rs8000	21	21.0
Total		100	100.0

Among the subjects, 78% were multipara and 22% were primigravidae. Still births were not reported by maximum number of subjects (97%) (Table 2).

Table 2: Number of pregnancy and pregnancy outcome of respondents

Characteristics	*Category*	*Respondents*	
		Number	*Percent*
No of Pregnancy	No	22	22.0
	2-Jan	53	53.0
	4-Mar	25	25.0
No of still births	Nil	97	97.0
	One/Two	3	3.0
No of living children	No	65	65.0
	One	29	29.0
	Two	6	6.0
Total		100	100

Information elicited on the general dietary pattern of the subjects indicated that majority (82%) of the subjects were using a mixed type of diet consisting of non-vegetarian food preparations either once a week or occasionally. An appraisal of the regularity of meals revealed that most of them were regular in their food intake.Thier meal pattern comprised of one breakfast and two meals (Table 3).

Table 4 depicts that 16% of the subjects were obese, 6% were hypertensive, 3% were diabetic and only 1% had migraine problems during the previous pregnancies. Table also shows family

Table 3: Dietary habit of respondents

Characteristics	*Category*	*Respondents*	
		Number	*Percent*
Type of Diet	Vegetarian	18	18.0
	Mixed	82	82.0
Eat in between meals	Yes	19	19.0
	No	81	81.0
Skip of omit meals	Yes	39	39.0
	No	61	61.0
Eat food outside home	Yes	37	37.0
	No	63	63.0
Total		100	100.0

Table 4: Medical history of respondents (N = 100)

Medical History	*Response*			
	Family Members		*Respondents*	
	Number	*Percent*	*Number*	*Percent*
Hypertension	29	29.0	6	6.0
Diabetes	23	23.0	3	3.0
Obesity	9	9.0	16	16.0
Migraine	2	2.0	1	1.0

disease history of the subjects. Majority of the family members were found to suffer from chronic diseases such as hypertension 29%, diabetes 23% and obesity 9%. Among the families only 2% had the migraine problem.

The term 'morbidity' refers to the state of being diseased affecting the way of life of human beings. During pregnancy, morbidity status not only affects mothers but also the offspring. Hence in the present study, the morbidity status of the mothers was assessed. The common ailments expressed by the majority of subjects during pregnancy were fever (82%), diarrhea (11%), cough (9%), urinary tract infection (1%) and others (2%) (Table 5).

Table 5: Morbidity status of respondents during the course of pregnancy

Morbidity status[1]	*Respondents*	
	Number	*Percent*
Fever	82	82.0
Cough	9	9.0
Diarrhea	11	11.0
Urinary tract infection	1	1.0
Others	2	2.0

[1]Multiple response

It was observed that maximum number of women had normal delivery 49%. Cessarian as mode of delivery was comparatively more among women of more than 25 years age groups (56.5%).

A study has reported more number of cesarean deliveries with urban women than rural (Easwaran and Sathiyanayaki 1995). Many studies have observed that the risk of cesarean deliveries increases with greater maternal age (Mukho padhyay et al. 1992; Witter et al.1995; Ecker et al. 2001; Goldman et al.2005). However, the association between age-group and mode of delivery was statistically non-significant (Table 6).

From Table 7, it can be seen that the association between order of pregnancy and mode of delivery was non significant. as well as the association between mode of delivery and birth weight of the baby were statistically Non-significant. The findings are in agreement with earlier reports George et al. (2003) stating who have reported that parity as such had no direct influence on the birth weight of the baby. Contradictory results were also reported grand multiparity is at risk (Bai et al. 2002). But in the present study, the nonsignificant association found was may be due to less sample size in the higher order of pregnancy.

The non-significant association was also observed between age-group and birth weight of the infants (Table 8) . The study group included women aged between 20-30 years. According to studies the relative risk of delivering low birth weight babies was more among mothers who were below the age of 20 years or above 30 years (Padte et al. 1989; George et al. 2003).

Somatic status reflects the body size as influenced by several factors, most important being heredity, environment and diet. Nutrition forms the core which influences maternal weight and height. These two measurements are used to compute the body mass index (BMI), an index of nutritional status of adults.BMI is a good index to assess the nutritional status of women in pregnancy as well as through out 1pregnancy. It has long been recognized that in adult life, with

Table 6: Association between age group and mode of delivery

Number of pregnancy	*Mode of delivery*							
	Caesarian		*Normal*		*Induced labor*		*Combined*	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
< 22 years	9	33.3	14	51.9	4	14.8	27	100
23-25 years	12	42.9	14	50.0	2	7.1	28	100
>25 years	13	56.5	10	43.5	0	0.0	23	100
Total	34	43.6	38	48.7	6	7.7	78	100

Table 7: Association between number of pregnancy and mode of delivery

Age group	*Mode of delivery*							
	Caesarian		*Normal*		*Induced labor*		*Combined*	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
One	22	44.0	23	46.0	5	10.0	50	100
Two	3	100.0	0	0.0	0	0.0	3	100
Three	3	25.0	8	66.7	1	8.3	12	100
Four	6	46.2	7	53.8	0	0.0	13	100
Total	34	43.6	38	48.7	6	7.7	78	100

χ^2 Values=7.147 ^{NS} NS: Non-Significant

Table 8: Association between age group and birth weight of the baby

Mode of delivery	*Birth weight of the baby*							
	<2.5 kg		*2.5-3.0 kg*		*>3.0 kg*		*Combined*	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
< 22 years	6	22.2	14	51.9	7	25.9	27	100
23-25 years	6	21.4	18	64.3	4	14.3	28	100
>25 years	6	26.1	11	47.8	6	26.1	23	100
Total	18	23.1	43	55.1	17	21.8	78	100

χ^2 Values= 1.963 ^{NS} NS: Non-Significant

Table 9: Association between age group and body mass index

Age group	*Body Mass Index (BMI)*							
	Under weight (< 18.4)		*Normal (18.5-24.9)*		*Over weight (25.0-29.9)*		*Combined*	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
< 22 years	14	51.9	12	44.4	1	3.7	27	100
23-25 years	7	25.0	20	71.4	1	3.6	28	100
>25 years	3	13.0	18	78.3	2	8.7	23	100
Total	24	30.8	50	64.1	4	5.1	78	100

χ^2 Values= 9.943 **Significant at 5% level

advancing years, body weights tend to rise due to change in body composition. Majority of the women had BMI in the normal range (64%). This is probably due to the fact that the subjects were below 40 years old. The underweight pregnant were more in the age group <22 years (52%) and over weight women were more in the age group > 25 years (8.7%). The influence of age on BMI was statistically significant at 5% level, showing an increasing trend in weight against the gradient of age (Table 9). Nerlekar et al. (1999) has reported that pregnancy outcome is influenced by mother's stature. The study reinforces the importance of normal weight not only to maintain good health but also to have better gestational outcome during pregnancy. It also envisages that the basic nutrition education is very essential for women in order to maintain the normal body mass index compulsorily during the prime child bearing age.

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