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ANALYSIS OF OBSERVED DATA FOR OUTCOME OF PREGNANCY

SUSHILA[a1] AND TAPTI BHATTACHRJEE[b]

[ab]Nims Nursing College, Nims University Rajasthan, Jaipur, Rajasthan, India

ABSTRACT

In this study the mothers and new born to them were safer in group-1 (urban) than other two groups (rural and remote area groups). In other words, the women who availed regular antenatal care and advice were safer than those who could not avail proper health care in rural and remote areas. Therefore, the antenatal heath care services should be further extended and strengthened in rural and remote areas under national rural health program and simultaneously educating the society.

KEY WORDS: Antenatal Health Care, Comparison Between Urban & Rural Areas

Antenatal care (ANC) or prenatal care refers to the care that is given to a pregnant woman from the time when conception is confirmed until the beginning of labour. It is a type of preventive healthcare with the goal of providing regular check-ups that allow doctors or midwives to treat and prevent potential health problems throughout the course of the pregnancy. A recent report of an international maternity care monitoring project found a positive impact of prenatal care on birth weight and better outcome of pregnancy. Inadequate or absent prenatal care is often cited as a risk factor for low birth weight and other poor pregnancy out comes. Now-a-days the availability of routine prenatal care, including prenatal screening and diagnosis, has played a great role in reducing maternal and infant death rates. Antenatal care has, therefore, been considered as main tool for safe outcome of delivery. So lot of importance has been given to this entity in regard to number of antenatal visits, nutritional status and health education to carrying mothers, considering early detection of particular ailment and its prompt remedy. Keeping the role of prenatal care, a study was conducted to compare the effect of prenatal care in urban, rural and remote area

MARERIAL & METHODS

The study was conducted in village Nizampur, district Sonipat (Haryana) as rural (covered by PHC) and remote area (not covered by PHC) and in urban area of Jorbagh, New Delhi (covered by a Maternity Hospital). The three groups were consisting of 50 pregnant women each. Essential parameters and measured data from the pregnant women who participated in this clinical research were evaluated for establishment of final results. The collected observations were statistically compared and depicted in various tables for easy assessment of the result and conclusion.

RESULTS

The age, sex and parity of pregnant women were comparable in all the three groups as proposed in study protocol.

Income and Educational Qualification

Income and educational qualification were noted in different groups. Data are presented in Table 1 and Table 2.

Table 1: Educational qualification

Group no.	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1	50	10.80	3.974	.562	9.67	11.93	0	17
2	50	8.76	2.076	.294	8.17	9.35	5	12
3	50	3.72	2.990	.423	2.87	4.57	0	10
Total	150	7.76	4.297	.351	7.07	8.45	0	17

[1]Corresponding Author

Anova: Educational qualification					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1328.160	2	664.080	68.592	.000
Within Groups	1423.200	147	9.682		
Total	2751.360	149			

Table 2: Income per month (Rs.)

Group No.	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1	50	11760.00	5430.676	768.014	10216.62	13303.38	6000	30000
2	50	6340.00	1184.250	167.478	6003.44	6676.56	4000	10000
3	50	4860.00	769.574	108.834	4641.29	5078.71	3000	6000
Total	150	7653.33	4383.062	357.875	6946.17	8360.50	3000	30000

Anova: Income per month (Rs.)					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1319613333.333	2	659806666.667	62.865	.000
Within Groups	1542860000.000	147	10495646.259		
Total	2862473333.333	149			

The educational qualification and monthly income, were compared between the three groups by applying ANOVA test as depicted in table-1, and table-2 respectively, which revealed that the women in group-1 possessed significantly higher literacy and income than the group-2 and group-3. Similarly women in group-2 were more educated than group-3. (p-value >.005).

Blood Pressure and Blood Sugar

Blood pressure and blood sugar were statistically compared between group 1 and group 2 at 36 weeks of gestation as shown in table-3 and table-4. The above parameters in group-3 could not be recorded as these women did not avail the antenatal care.

Table 3: Blood Pressure (Systolic /Diastolic)

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	SYS1	122.86	50	6.496	.919
	SYS2	129.12	50	6.301	.891
Pair 2	DIAS1	81.62	50	5.083	.719
	DIAS2	86.12	50	5.102	.721

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	SYS1 & SYS2	50	-.380	.006
Pair 2	DIAS1 & DIAS2	50	-.149	.301

Table 4: Blood Sugar Fasting (F)/ Post Parandial (PP)

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Sugar - F1	72.36	50	4.776	.675
	Sugar - F2	72.28	50	7.362	1.041
Pair 2	Sugar - pp1	110.98	50	9.830	1.390
	Sugar - pp2	125.80	50	11.012	1.557

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	Sugar - F1 & Sugar - F2	50	.105	.468
Pair 2	Sugar - pp1 & Sugar - pp2	50	.077	.597

Comparative blood pressure (BP) figures in table-3 show that BP readings significantly remained on higher side in group-2. It shows that women in group-1 were nicely managed for BP control by prescribing antihypertensive medicines for pregnancy induced hypertension (PIH).

Similarly table-4 depicts blood sugar levels between group-1 and 2 and indicates that women in group-2 had higher levels of blood sugar.

Hemoglobin

Hemoglobin level in blood was statistically compared between group-1 and-2 in table-5 which shows that its value remained statistically on higher side in group-1.

Table 5: Hemoglobin Level (Hb. gm)

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Hb-1	12.600	50	.4328	.0612
	Hb-2	11.27	50	.613	.087

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	Hb-1 & Hb-2	50	-.314	.026

Maternal Weight

Maternal weight gained and uterine height attained by pregnant women at 36 weeks of gestation was compared in table-6 and table-7 respectively.

Table 6: Maternal Weight in (MTWT) (Kg)

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	MTWT 1	10.102	50	1.0613	.1501
	MTWT 2	8.92	50	.617	.087

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	MTWT1 & MTWT2	50	.277	.052

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	MTWT 1 – MTWT 2	1.178	1.0699	.1513	.874	1.482	7.786	49	.000

It is obvious from the table 6 that weight gained by group-1 women was statistically significantly higher than group1. This in turn supports the positive role of regular antenatal care received by the pregnant women in group-1.

Uterine Height in weeks (UTHT)

Uterine height was recorded weekly and presented in Table 7.

Table 7: Uterine Height in weeks (UTHT)

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	UTHT 1	36.28	50	.882	.125
	UTHT 2	34.84	50	.792	.112

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	UTHT1 & UTHT2	50	.124	.391

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	**UTHT1 - UTHT2**	1.44	1.110	.157	1.12	1.76	9.177	49	.000

The data in table 7 indicate that uterine height attained by group-1 women was statistically significant. This in turn supports the positive role of regular antenatal care received by the pregnant women in group-1.

APGAR SCORE

The APGAR score was recorded and statistically compared in table-8 and table-9.

It was observed that the APGAR score of babies born to group-1 women remained significantly higher than the other two groups. This suggests that condition of babies at birth in group-1 was significantly better than the babies born to group-2 & 3 women. It is further observed that condition of babies born to group-2 women was better than the group-3. In other words the babies in group-3 had lowest score and were vulnerable to higher risk for survival.

Table 8: APGAR Score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1	50	8.88	.385	.055	8.77	8.99	7	9
2	50	8.56	.501	.071	8.42	8.70	8	9
3	50	7.42	2.807	.397	6.62	8.22	0	9
Total	150	8.29	1.766	.144	8.00	8.57	0	9

Anova: APGAR Score					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	58.893	2	29.447	10.668	.000
Within Groups	405.780	147	2.760		
Total	464.673	149			

Weight of New Born Baby

weight of new born baby were recorded and statistically compared in table-9.

Table 9: Weight of Newborn Babies. (Kg)

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1	50	2.74994	.316662	.044783	2.65995	2.83993	2.160	3.500
2	50	2.46460	.215247	.030441	2.40343	2.52577	2.000	3.000
3	50	2.14400	.593557	.083942	1.97531	2.31269	.000	2.800
Total	150	2.45285	.475129	.038794	2.37619	2.52950	.000	3.500

Anova: Weight of new born baby

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.189	2	4.595	27.628	.000
Within Groups	24.447	147	.166		
Total	33.636	149			

The weight of newborn babies was significantly higher in group-1 than the group-2 and group-3. It was further noted that birth weight of group-2 babies was significantly higher than the group-3. It is, therefore, revealed that regular antenatal care and advice given to group-1 women proved beneficial.

DISCUSSION

The studies were conducted to assess the effect of prenatal care on pregnant women and newly born babies. The findings reveal that urban women possessed significantly higher literacy rate and higher income than rural groups. The parameters like blood pressure, blood sugar, maternal weight, uterine height were recorded throughout the course of pregnancy and compared statistically at 36 weeks of gestation. The weight of new born baby and APGAR score were measured immediately after delivery of baby and compared statistically between the three groups to assess the condition of new born baby.

The results show that all parameters were better in urban group than rural groups of pregnant women. This indicate that due to better education and higher income, and also timely and frequent prenatal care available to urban women, they were in advantage to have better parameters than rural women. Further, rural women having access to prenatal care under PHC are betterly placed than those not covered under PHC or did not visit PHC due to one or the other reason. These findings strongly indicate a positive effect of education, income and prenatal care on pregnant women and newly born baby. Similar findings were reported by Erci B (2003) and Gupta & Najir (2015) who have shown that literacy rate and family income of pregnant woman had a correlation with outcome of pregnancy. Higher is the socio-economic status and literacy safer the outcome. Toan, et al (2011) showed the disparities in rural and urban areas on utilization of antenatal services.

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