Multivariate Analysis of the Factors Influencing the Pregnancy Outcome: A Hospital Based Study

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Abstract: _Background_: *There are a multiple factors which contribute in the pregnancy outcome. Research has documented that Pregnancy outcome is having a strong association with the age of mother, Nutrition of mother, previous history of any chronic disease as well as the visit to health care facilities during antenatal period.* _Materials and Method_: *A cross sectional hospital based study was conducted for a period of six month.* _Result & Discussion_: *It was significant to find that early pregnancy as well as late pregnancy has a very significant association with the birth weight of the babies, 23.5% of the females were having haemoglobin above 12% and 23.5% of the females were having haemoglobin below 10%. 27.9% of the babies were having birth weight below 2.5kg at the time of delivery.* _Conclusion_: *There was a strong association between the age of the mother and birth weight of the baby, Haemoglobin % as well as the associated complications.*

Keywords: Pregnancy, Haemoglobin, Religion, Birth weight, Vaginal Delivery.

1. Introduction

Pregnancy is influenced by a number of factors. These factors include nutrition of the woman, child spacing, maternal age (under 15 years and over 35 years), prenatal care, lifestyle behaviours e.g. smoking, alcohol consumption, etc. (Wardlaw & Kessel, 2002) [1]. A study by Kazaura et al. (2006) reported that, several risk factors influence neonatal mortality. These include parity, maternal age, race, marital status, smoking, birth weight, gestation age, labour complications, antenatal care, previous unfavourable outcomes e.g. stillbirth, neonatal deaths, maternal morbidity e.g. malaria and HIV infection and poor socio-economic conditions [2]. Poor nutritional status during pregnancy has been associated with irreversible damage to the infant brain and central nervous system leading to poor brain development and intelligence. Evidence exists that, obesity and non-communicable diseases e.g. cardiovascular diseases start early in childhood (Wardlaw & Kessel, 2002) [1]. It is estimated that, about four million out of 130 million infants born worldwide die during the first four weeks of life and more than three million are stillborns (Kazaura et al., 2006) [2].

Low birth weight remains a public health problem in many parts of the world and is associated with a range of health problems, lasting disabilities and even deaths (March of Dimes, 2009) [3]. One-half of low birth weight infants in industrialized countries are born preterm (<37wk gestation), however, in the developing countries these children are born at term but are affected by intrauterine growth retardation that begins early in pregnancy (Ramakrishnan, 2004) [4].

A number of factors influence the pregnancy outcome such as age of mothers, previous registration in a health care facility, socio economic status, nutrition and religion, etc.

Hence, the present study was undertaken to know the influence of certain factors on the outcome of delivery.

2. Aims and Objectives:

1. To Study some epidemiological factors in pregnancy outcome.
2. To Study the correlation of these factors and the influence of the same on the outcome
3. Suggest recommendations based on study findings.

3. Materials and Method

The study was carried out in the obstetrics and Gynaecology department of the attached hospital of the medical college of the district and which drains the patients from the hilly regions as well as the plane regions of the zone. It caters to patients coming from mixed population from both rural and Semi urban region.

Even being a private hospital, most of the services are highly subsidised; therefore, a large proportion of its clientele comprises poor and lower middle class people. It serves all sections of people living in the vicinity, and, being a specialist hospital also caters to referred cases from nearby areas.

The study includes all the 383 births conducted in the hospital in this period. We selected women who were booked as well as Unbooked for the delivery. The information was collected daily by visiting the Obstetrics and Gynaecology department on daily basis.

Study Area
The study was conducted in the Obstetrics and Gynaecology department of the SGRR Medical College – Dehradun.

Type of study
Hospital based cross sectional study.

Study period
The study was conducted over a period of six months from 01/01/2013 to 30/06/2013.

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Study Sample
All the hospital deliveries (booked as well as unbooked) during this period were included for the study purpose these were 383.

Statistical Analysis
The data was analyzed by using statistical packages of SPSS version 15 & Graph Pad. Vacuum)
53.5% of the delivered babies were female.

B= Booked Cases
UB= Un booked Cases
VD = Vaginal Delivery
VBAC = Vaginal Birth After Caesarean
IUD= Intra uterine Death
AVD= Assisted Vaginal Delivery(Forceps/

4. Result

Table 1: Descriptive analysis of all cases (N=383)

Variable name	Frequency	%
Age of patients'	Mean ± S.D	26.6 ± 4.2
B/UB %		
B	253	66.1
UB	130	33.9
Religion %		
Hindu	318	83
Muslim	57	14.9
Sikh	7	1.8
Christian	1	0.3
Gender %		
Male	178	46.5
Female	205	53.5
Complication %		
Yes	195	50.9
No	188	49.1
Mode of Delivery %		
AVD	11	2.9
LSCS	117	30.6
VBAC	9	2.3
VD	246	64.2
Haemoglobin%		
<10	90	23.5
12-Oct	203	53
>12	90	23.5
Weight %		
<2.5 kg	107	27.9
≥ 2.5 kg	276	72.1

Table 2: Distribution of age group with gender

Age group	Male	%	Female	%	Total	%	Z Statistics with p value
Less than 20	3	1.7	3	1.5	6	1.6	0.1 (p > .05)
20-25	60	33.7	69	33.7	129	33.7	0 (p = 1)
25-30	71	39.9	92	44.9	163	42.6	0.6 (p > .05)
30-35	38	21.3	30	14.6	68	17.8	0.6 (p > .05)
More than 35	6	3.4	11	5.4	17	4.4	0.2 (p > .05)
Total	178	46.0	205	54.0	383	100.0	1.6 (p > .05)

Maximum deliveries were conducted in 25-30 yrs of age group (42.6%)

Table 3: Distribution of age group with Haemoglobin

Age group	N	Mean	Std. Deviation	Std. Error of Mean
Less than 20	6	12.33	.641	.262
20-25	129	10.83	1.773	.156
25-30	163	10.97	1.584	.124
30-35	68	10.98	1.598	.194
More than 35	17	9.57	2.010	.487
Total	383	10.89	1.690	.086

* Overall result is statistically significant

Mean Hb% of female less than 20yrs was 12.33 and Mean Hb% of females above 35 yrs was below 10.

Table 4: Correlation analysis among all variables

Variable	Age group	BUB	Religion	Sex	complication	Mode of Delivery	Haemoglobin	Weight
Age group	1.000	.024	.004	-.020	-.075	-.138[**]	-.026	-.104[*]
BUB		1.000	.110[*]	-.106[*]	-.207[**]	-.090	-.241[**]	-.230[**]
Religion			1.000	.013	-.083	.026	-.083	-.103[*]
sex				1.000	.130[*]	.165[**]	-.023	.062
complication					1.000	.620[**]	.122[*]	.285[**]
Mode of Delivery						1.000	.052	.193[**]
Haemoglobin							1.000	.059
Weight								1.000
**. Correlation is significant at the 0.01 level (2-tailed).								
*. Correlation is significant at the 0.05 level (2-tailed).								

There is a strong association between the age of mother and birth weight of the baby, Hb% as well as the associated complications.

5. Discussion

During the study period a total of 383 deliveries were conducted. 253 cases were registered and 130 were unregistered. 83% cases were of Hindu religion. 53.5% of the deliveries were of girl child. 50.9 % of the cases were associated with some complications. 64.2% of the deliveries were normal vaginal deliveries, 30.6% of the deliveries were Lower section caesarean section, 2.9% were assisted vaginal deliveries and 2.3% were vaginal birth after caesarean section. 23.5% of the females were having haemoglobin above 12% and 23.5% of the females were having

haemoglobin below 10%. 27.9% of the babies were having birth weight below 2.5kg at the time of delivery (Table 1). 1.6% of the pregnant females were of less than 20 yrs of age, 4.4% were more than 35yrs of age and 42.6% were in the 25-30 age group (Table 2). Pregnant females above 35yrs of age were having mean Hb% below 10. Patients below 20yrs of age were having Hb% of 12.33 (Table 3). There was a strong association between the age of the mother and birth weight of the baby and Haemoglobin % of the mother (Table 4).

6. Conclusion

There was a strong association between the age of the mother and birth weight of the baby, Haemoglobin % as well as the associated complications. Pregnancy above 35yrs of age was associated with assisted delivery or LSCS and they were having more associated complications in comparison to 25-30 yrs of age group.

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