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A STUDY ON FETAL LOSSES AND AFFECTING FACTORS IN HUMAN REPRODUCTION AT VELLORE DISTRICT MOTHERS

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Abstract:

The aim of study is to describe the variation in the fetal losses with related factors in a population based prospective study of pregnancies in Vellore district mothers of Tamilnadu. The following groups of factors Genetic factors, Obstetrics factors, Socioeconomic and environment factors on fetal losses using multiple logistic regression analysis. The present paper briefly describes the samples represented reasonably the Urban and Rural areas brought for the significant variables as parity, maternal age, pregnancy interval, earlier fetal death, household income, household size, mothers education and father education of Vellore district.

Introduction:

Objective and Need for the Studies on Fetal Losses:

Fetal losses are defined on the death prior to the complete expulsion or extraction from its mother of a product of conception irrespective of the duration of pregnancy. Fetal losses are essential that from view point of health, abortion outside the medical setting is one of the dangerous consequences relating to the unwanted pregnancies. The reproductive wastage is influenced by biological and environmental factors to different degrees in different ways. Although individual studies identified many factors which might cause obstetric and perinatal mortality, there is a need for a more broadly based study towards the relationship of social economic, demographic and environmental factors to outcome of pregnancy.

Assumptions of Hypothesis:

In this study it is hypothesized that the effect of the factors explained changes of the frequency and distribution of fetal losses significant relationship exist between the variables under study.

Materials and Methods:

Data for this research was obtained from a major population based prospective research carried out during 2014 to 2017 in Vellore district of Tamilnadu to study several aspects of human reproduction. In a large number of pregnancies observed very highly reliable information on fetal losses in gestational age were obtained through careful observations. One of the significant features of this larger study was its prospective nature, wherein trained women investigators through five weeks visits determined the pregnancy soon after the women had missed normal menstruation period through five weekly visits. During the whole period of study the number of pregnancies registered were 14,573 of which termination details were recorded for 14,243 the rest lost to follow up before termination mainly due to migration of pregnant women.

Statistical Procedures:

Bivariate analysis was carried out in this study for the types of fetal losses with its associated variables. For each of the type of fetal losses namely early, intermediate and late the fetal losses rates were calculated per thousand pregnancies in each classification of the variable studied. Multiple logistic regression analysis technique was used to study the relationship of the independent variables with a qualitative dependant variable measuring the presence or absence of fetal losses.

Multiple Logistic Regression Analysis:

Multiple logistic regression analysis was used to obtain the effect of each significant variable on fetal losses with potential covariates being taken into account. All the variables significantly associated with the fetal losses were included for the analysis of the model. The logistic regression analysis done for the urban areas brought for the significant variables as parity, maternal age, pregnancy interval earlier fetal losses mother education household income and household size. The odds ratios significantly founds were above 35 years of maternal age of 2.4 times higher than 20 to 24 years. Those who had 1 or 2 and above 2 earlier fetal losses had higher risk of 1.3 and 1.9 times respectively than those who never had. Primi parity showed 1.9 times higher risk than para two while above 2 parity groups showed protective effect 0.7 times than second para significantly. Pregnancy interval of less than 2 years and above 3 years where significantly higher risk than 2 to 3 years as 1.9 and 1.1 times respectively. Illiterate and lower household size showed protective effect in the presence of the other variables as 0.8 and 0.6 times.

The likelihood ratio statistics was significant LRS = 1376.9

The logistic regression analysis done for the rural areas brought for the significant variable as parity,

maternal age, pregnancy interval, type of food maternal education and household size. Maternal age of teenage was 0.4 times lower and 2.2 times higher risk than 20 to 34 years. Primi para was 2.1 times higher and above 2 parity group was 0.7 times lower than para two. Pregnancy interval of less than 2 years was significantly twice higher than 2 to 3 years. Type of food, illiteracy and household size of 4 showed protective effects in the presence of the other variables.

The likelihood ratio statistics was significant LRS = 2399.8

Table 1: Logistic Regression of Factors Affecting Fetal Death Urban

Variable	Coefficient	Standard Error	Odds Crude	Ratio Adjusted	95% Confidence Interval
Parity:					
1	0.63	0.14	2.38	1.88 *	1.16 – 2.48
2			1.00	1.00	
>=3	-0.31	0.13	0.85	0.73 *	0.57 – 0.94
Maternal Age (Years):					
<=19	-0.23	0.17	1.34	0.80	0.57 – 1.10
20 – 34			1.00	1.00	
>=35	0.89	0.13	1.90	2.44 *	1.88 – 3.17
Pregnancy Interval (Months):					
<24	0.73	0.12	2.47	2.09 *	1.62 – 2.69
24 – 35			1.00	1.00	
>=36	0.26	0.15	1.34	1.30	0.98 – 1.73
Early Morbidity and Fetal Death:					
0			1.00	1.00	
1	0.24	0.11	1.48	1.27 *	1.02 – 1.58
>=2	0.63	0.16	2.01	1.87 *	1.38 – 2.55
Household Size:					
< 4	-0.44	0.11	0.51	0.64 *	0.52 – 0.80
>= 4			1.00	1.00	
Household Income:					
< 10000	-0.17	0.11	1.36	0.64	0.69 – 1.04
>= 10000			1.00	1.00	
Education of Father:					
Illiterate	0.08	0.12	0.97	1.09	0.86 – 1.33
Literate			1.00	1.00	
Education of Mother:					
Illiterate	-0.28	0.10	0.84	0.76 *	0.62 – 0.92
Literate			1.00	1.00	
Likelihood Ratio Statistics = 1377.0 *** p < 0.05, ** p < 0.01, *** p < 0.001					

Table 2: Logistic Regression of Factors Affecting Fetal Death Rural

Variable	Coefficient	Standard Error	Odds Crude	Ratio Adjusted	95% Confidence Interval
Parity:					
1	0.74	0.12	2.38	2.10 *	1.67 – 2.63
2			1.00	1.00	
>= 3	-0.39	0.10	0.94	0.68 *	0.56 – 0.82
Maternal Age(Years):					
<=19	-0.74	0.12	1.15	0.48 *	0.38 – 0.60
20 – 34			1.00	1.00	
>=35	0.79	0.10	1.82	2.20 *	1.80 – 2.70
Pregnancy Interval(Months) :					
< 24	0.71	0.09	2.30	2.05 *	1.20 – 2.48
24 - 35			1.00	1.00	
>=36	0.18	0.10	1.31	1.19	0.98 – 1.44
Early Morbidity and Fetal Death:					
0			1.00	1.00	
1	-0.07	0.09	1.21	0.93	0.78 – 1.12
>=2	0.07	0.15	1.56	1.07	0.66 – 1.44

Household Size:					
<4	-0.26	0.09	0.63	1.19 *	0.65 – 0.92
>=4			1.00	1.00	
Type of Food:					
Vegetarian	-0.28	0.13	0.94	0.76 *	0.59 – 0.98
Non Vegetarian			1.00	1.00	
Education of Father:					
Illiterate	-0.12	0.07	0.89	0.89	0.77 – 1.03
Literate			1.00	1.00	
Education of Mother:					
Illiterate	-0.38	0.10	0.82	0.68 *	0.56 – 0.83
Literate			1.00	1.00	
Likelihood Ratio Statistics = 2399.8 *** *p < 0.05, ** p < 0.01, *** p < 0.001					

Summary and Conclusion:

- ✓ The principal factors influencing the outcome of pregnancy may fall into three categories, biological nature including that of genes and the maternal reproductive system, obstetrical factors pertaining to labor and the birth process and external environmental factors.
- ✓ One of the significant features of the study was to determine the pregnancy soon after the women has missed the normal menstruation period through five weekly visits. The menstrual data of every eligible woman were obtained by direct interview with the women.
- ✓ In multiple logistic regression analysis technique was used to qualitative dependent variable measuring the presence or absence of fetal loss.
- ✓ Among total fetal losses in both the urban and rural areas the proportion of early fetal losses was about 80 percent and each of intermediate and late fetal losses about ten percent.
- ✓ The fetal losses were characterized by higher gravida, higher maternal age and previous fetal losses and lower pregnancy interval as compared to live births and these were especially evident in the early fetal losses.
- ✓ Multiple logistic regression analysis revealed that fetal loss was significantly influenced by maternal age, parity, pregnancy interval, mothers education, earlier fetal losses and household size in urban, whereas in rural, parity, pregnancy interval, earlier fetal losses and household size were affecting the fetal losses.

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