

Identification of Socio-Economic and Demographic Determinants of Pregnancy and Delivery Complications in Jharkhand using DLHS-3 Data

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ABSTRACT

Pregnancy and delivery complications are serious issues affecting maternal health in developing countries like India. This study is an attempt to find out the socio-economic and demographic determinants of pregnancy and delivery complications among women of reproductive age groups (15-49 years) in Jharkhand based on DLHS-3 (District Level Household Survey) data. To find out the different socio-economic and demographic determinants and their association with pregnancy and delivery complications bivariate association, Chi-square test and binary logistic regression had been applied. The results highlight that the situation of Jharkhand is not so good and it suffers from the higher rate of pregnancy and delivery complications. The analysis highlights that majority of respondents suffered from pregnancy (67.50%) and delivery complications (84.00%). Important determinants of pregnancy and delivery complications in the study area are early age marriage, years of schooling, and economic condition of respondents.

1. Introduction

Important causes of maternal mortality in developing countries are pregnancy complications, abortion and delivery complications¹. Beside these factors, it has also been established that the year of schooling is an important determinant of pregnancy and delivery complications in Jharkhand. It is observed that only 13.5 per cent women had completed more than 11 years of schooling and only 30.8 per cent women reported that their year of schooling were less than 5 years. The majority of women's (55.7 %) age at marriage was less than legal age (18 years). So, two important determinants affecting pregnancy and delivery complications in the study area are age at marriage and year of schooling. Moreover, obesity during pregnancy increases the risk of gestational hyper tension, gestational diabetes and C- Section delivery². Early age pregnancy is an important determinant of pregnancy and delivery complications including preterm birth, low birth weight etc. in developing countries³. The adolescent pregnancy has negative health impact in low and middle income group of countries⁴⁻⁶. Child marriage is the marriage which occurs before the age of 18 years and it has adverse effect on maternal health⁷. The study on teenage pregnancy highlights the serious adverse health effects on women like anaemia, preterm birth, and low birth weights etc.⁸⁻¹¹. It had also been established that the motherhood after age 40years, increases the chance of higher risk of operative delivery (i.e. C-section, forceps and vacuum deliveries)¹². The variables affecting pregnancy complications are age and weight of mother, mothers Rh type, previous illness, age at first menstruation and its duration, mothers pulse rate etc.¹³⁻¹⁵. Reproductive morbidity is foremost factor affecting the ill health and morbidity of women in developing countries¹⁶⁻²⁰.

This study is an attempt to identify the various socio-demographic determinants affecting pregnancy and delivery complications of women between 15-49 years in Jharkhand which is an EAG (Empowered Action Group) state in India and characterised by high rate of maternal and child mortality, early age at marriage and very low level of female literacy rate.

2. Materials and Methods

This study has been done based on DLHS-3 (2007-08) data which covered 26,886 ever married women respondents of reproductive age group (15-49 years) from different socio-demographic characteristics. To show any pregnancy and delivery complications bivariate association and Chi-square test have been done. Binary Logistic Regression models have been applied to detect important socio-economic and demographic determinants of pregnancy and delivery complications in Jharkhand.

3. Result and Discussion

Table 1 represents the characteristics of ever married woman (15-49 age group) according to their socio-economic and demographic condition. About 68% of the ever married women had any pregnancy and 84 % had any delivery complications. Majority of woman from rural area belonged from ST(33%) and others(53%), believed in Hindu religion and they had having low level of year of schooling(13.5%) in case of woman 55.7 % of woman were married before legal age of marriage (< 18 years) with poorest wealth quintile (40.4%). Early age at marriage is associated with pregnancy and delivery complications³.

Table-1
Sample Characteristics of Ever Married Women Aged 15-49 Years According To Their Socioeconomic and Demographic Characteristics in Jharkhand, 2007-08

Characteristics	Un-weighted sample Size	Weighted %
Any pregnancy complications		
No	3,733	32.5
Yes	7,741	67.5
Any delivery complications		
No	1,831	16.0
Yes	9,643	84.0
Place of residence		
Rural	23,127	86.0
Urban	3,759	14.0
Social Groups		
SC	3,761	14.0
ST	8,823	32.8
Others	14,302	53.2
Religion		
Hindu	18,521	68.9
Muslim	2,727	10.2
Others	5,638	21.0
Age		
15-19	1,845	6.9
20-24	5,054	18.8
25-29	5,731	21.2
30-34	5,306	19.7
35+	8,950	33.3
Characteristics		
Un-weighted sample Size		
Weighted %		
Women's completed years of schooling		
0-5	3,026	30.8
6-10	5,456	55.7
> 11	1,327	13.5
Husband's completed years of schooling		
0-5	4,098	23.7
6-10	9,718	56.2
> 11	3,493	20.1
Age at marriage		
18 and above	11,917	44.3
<18 age	14,969	55.7
Wealth Quintile		
Poorest	10,863	40.4
Poorer	7,540	28.1
Middle	3,620	13.5
Richer	2,527	9.5
Richest	2,336	8.6

Source: DLHS 3, Jharkhand, 2007-08.

Table 2 represents bivariate association and chi-square test between different variables related to the pregnancy and delivery complications in Jharkhand. The prevalence of pregnancy complications was higher among young (15-19) women (86%) and who resided in rural areas (67.8%), most of them belonged to others (68%) and ST (67%) groups. The

social group wise analysis of pregnancy and delivery complications are more among the Muslim women (70% have pregnancy complications and 85.49 % have delivery complications) compared to Hindus. 68% of woman married below legal age of marriage are suffering from the pregnancy complications and 82.10% of them are suffering from delivery

complications. 67.7% and 83.70 % of woman of poorest quintile are suffering from pregnancy and delivery complications respectively.

Table-2
Bivariate Association Showing Percentage Distribution and Pearson's Chi-Square Test between Pregnancy and Delivery Complications and Socioeconomic Characteristics of Women Aged 15-49 Years in Jharkhand, 2007-08

Characteristics	Any pregnancy complications			Any delivery complications		
	No	Yes	p value	No	Yes	p value
Place of residence						
Rural	32.2	67.8	0.031	16.70	83.30	0.000
Urban	35.8	64.2		9.40	90.60	
Social Groups						
SC	33.1	66.9	0.517	15.70	84.30	0.341
ST	33.0	67.0		15.40	84.60	
Others	32.0	68.0		16.50	83.50	
Religion						
Hindu	33.0	67.0	0.054	16.50	83.50	0.117
Muslim	29.6	70.4		14.60	85.40	
Others	32.7	67.3		15.20	84.80	
Age						
15-19	31.8	68.2	0.004	14.00	86.00	0.253
20-24	30.5	69.5		15.50	84.50	
25-29	32.5	67.5		16.20	83.80	
30-34	34.9	65.1		16.20	83.80	
35+	34.5	65.5		17.40	82.60	
Women's completed years of schooling						
0-5	30.6	69.4	0.772	15.50	84.50	0.157
6-10	31.1	68.9		14.50	85.50	
> 11	28.9	71.1		11.70	88.30	
Husband's completed years of schooling						
0-5	33.4	66.6	0.229	14.60	85.40	0.249
6-10	31.5	68.5		16.00	84.00	
> 11	30.7	69.3		14.50	85.50	
Age at marriage						
18 and above	33.3	66.7	0.083	13.60	86.40	0.000
<18 age	31.9	68.1		17.90	82.10	
Wealth Quintile						
Poorest	32.3	67.7	0.947	16.30	83.70	0.000
Poorer	33.0	67.0		17.80	82.20	
Middle	32.6	67.4		15.00	85.00	
Richer	32.4	67.6		12.20	87.80	
Richest	31.7	68.3		11.30	88.70	

Note: DLHS 3, Jharkhand, 2007-08. Percentages are computed by applying sample weight.

Table 3 represents the impact of social background and individual level factors on pregnancy and delivery complications of ever married women. We have applied

separate model for nuanced analysis by examining the impact of background and individual characteristics on pregnancy and delivery complications.

Table-3
Binary Logistic Regression Results Representing Socioeconomic and Demographic Determinants
of Pregnancy and Delivery Complications in Jharkhand, 2007-08

Characteristics	Any pregnancy complications		Any delivery complications	
	Model 1	Model 2	Model 3	Model 4
	OR 95% CI	OR 95% CI	OR 95% CI	OR 95% CI
Place of Residence				
Rural ®	1	1	1	1
Urban	0.761***	0.765**	1.794***	1.504**
	(0.640 - 0.903)	(0.608 - 0.962)	(1.379 - 2.335)	(1.073 - 2.109)
Social Groups				
SC ®	1	1	1	1
ST	0.958	0.873	1.034	0.92
	(0.829 - 1.108)	(0.638 - 1.194)	(0.857 - 1.247)	(0.610 - 1.388)
Others	1.003	0.903	0.870*	0.816
	(0.889 - 1.131)	(0.718 - 1.136)	(0.745 - 1.016)	(0.601 - 1.108)
Religion				
Hindu ®	1	1	1	1
Muslim	1.163**	1.068	1.215**	1.369*
	(1.020 - 1.326)	(0.849 - 1.343)	(1.026 - 1.438)	(0.994 - 1.885)
Wealth Quintile				
Poorest ®	1	1	1	1
Poorer	0.956	0.92	0.911	0.985
	(0.868 - 1.052)	(0.746 - 1.135)	(0.809 - 1.027)	(0.755 - 1.284)
Richer	1.083	0.917	1.263**	1.22
	(0.916 - 1.282)	(0.707 - 1.188)	(1.006 - 1.586)	(0.867 - 1.717)
Richest	1.237*	1.022	1.097	1.189
	(0.982 - 1.558)	(0.729 - 1.431)	(0.792 - 1.520)	(0.751 - 1.882)
Age				
15-19 ®		1		1
20-24		0.903		0.866
		(0.687 - 1.186)		(0.608 - 1.233)
25-29		0.779*		0.715*
		(0.588 - 1.032)		(0.497 - 1.029)
30-34		0.608***		0.666*
		(0.445 - 0.831)		(0.443 - 1.002)
35+		0.778		0.763
		(0.520 - 1.165)		(0.446 - 1.303)
Women's Completed years of schooling				
0-5 ®		1		1
6-10		1.036		1.113

		(0.874 - 1.227)		(0.896 - 1.381)
> 11		1.294*		1.179
		(0.965 - 1.737)		(0.796 - 1.745)
Husband's completed years of schooling				
0-5 ®		1		1
6-10		0.91		0.763*
		(0.722 - 1.146)		(0.560 - 1.041)
> 11		0.88		0.686**
		(0.669 - 1.156)		(0.477 - 0.989)
Age at Marriage				
18 and above years ®		1		1
<18 years		0.943		0.783**
		(0.810 - 1.097)		(0.643 - 0.953)
Constant	2.095***	3.569***	5.146***	10.01***
	(1.873 - 2.342)	(2.381 - 5.350)	(4.457 - 5.941)	(5.867 - 17.08)
Observations	11,474	3,867	11,474	3,867

Notes: OR= Odds Ratio; CI= Confidence Interval; ®: Reference category; Confidence Interval in parenthesis; Significance level: *** p<0.01, ** p<0.05, * p<0.1

Result shows that urban women were less likely to had pregnancy complications (OR 0.761, p<0.01) than rural woman. Women belonged to ST were less to had pregnancy complications (OR 0.761, p<0.01) than rural woman. Muslims (OR 1.163, p<0.01) were more likely to had pregnancy complications than its Hindu. Age of the women had a significant association with pregnancy and delivery complications, woman 15-19 had more likely to pregnancy and delivery complications then other age group on the other hand age group of 30-34 have less likely to pregnancy (0.608, p<0.01) and delivery (OR 0.666, p<0.1) complications. Women's Completed years of schooling had a significant association with pregnancy and delivery complications but husband completed years of schooling have no significant association. . In addition to this, women who married prior 18 years of age had very strong relation with pregnancy (OR 2.095, p<0.01) and delivery (OR 5.146, p<0.01) complications. Recently WHO has

published its guidelines on preventing early pregnancy and poor reproductive outcomes in adolescents²¹. So, we should follow those instructions to overcome the situations like pregnancy and delivery complications.

4. Conclusion

The pregnancy and delivery complications are common in both the rural and urban areas of Jharkhand. Pregnancy complications are more in rural areas while the delivery complications are more in urban areas. Analysis of religion wise decomposition of pregnancy and delivery complications indicates that Muslims are more vulnerable to the pregnancy and delivery complications compared to Hindu and other religions. The age at marriage has significant impact on pregnancy complications in Jharkhand and it has been noticed that the pregnancy complications are more in case of females married before 18 years.

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