



A Hospital Based Study on Complications of Childbirth and Associated Risk Factors at Ujjain, Madhya Pradesh

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ABSTRACT

Objectives: To estimate the prevalence of complications of childbirth among women delivering at district hospital Ujjain and its association with risk factors.

Method: An observational follow-up study was conducted among 400 women delivering at district hospital Ujjain MP.

Statistical Analysis: Statistical methods applied are: percentage and proportion, mean and standard deviation, chi-square test, multiple logistic regression analysis.

Result: The prevalence of complications of childbirth was 59%. The most common complication was hypertension 24.0%, followed by haemorrhage 14.5%, obstructed labour 13.5%, prolonged labour 8.5%, sepsis 7.2%, others 5.3%. Complications of delivery were significantly associated with religion, parity, complaint during ANC visit, and obstetric risk factors.

Conclusion: The complications of childbirth were significantly associated with socio-demographic factors (religion and caste), obstetric risk factors, and complaints during ANC visit and parity.

Keywords: Complications, Childbirth, Risk factors

INTRODUCTION

Around the world every day about 800 women die from pregnancy or childbirth related complications¹. In 2010, 287000 women died during and following pregnancy and childbirth. Almost all of these deaths occurred in low-resource settings, and most could have been prevented¹. In 2013 Maternal mortality ratio of India was 178 per lac live births (less than global maternal mortality ratio which was 190 per lac live birth)^{2,3} and of Madhya Pradesh 250 per lac live births and of Ujjain division was 268⁴. According to the estimates the MMR (maternal mortality ratio) has reduced from 212 per lac live birth in 2007-09 to 178 per lac live birth in 2010-12, still some states like Assam (328), UP (292), Rajasthan (255) and Madhya Pradesh (250) per lac live birth were showing highest maternal mortality in India.

In spite of various programme initiated by government of India we are lagging somewhere. Maternal mortality and morbidity are among the top

public health priorities in India, being quite high, especially among the most disadvantaged women. Pregnant women who endured a near miss situation have a profile probably similar to those who progress towards death, representing, thus, a proxy-model for maternal mortality^{5,6}. To clarify how the morbid conditions could have led to death creates the opportunity to improve the assistance to women at risk⁷. This study was undertaken with the objectives to estimate prevalence of complications of childbirth among women and its associated risk factors.

METHOD

An observational follow-up study was conducted from 1st April to 30th June 2015 in maternity centre of District Hospital Ujjain. A sample size of 400 participants was calculated using the formula $4pq/l^2$ considering 50% prevalence of complications of childbirth^{10,16,17,19}. All women of reproduc-

tive age group (15-45years) who came to the district hospital for delivery and gave consent were included. Women who were LAMA (Leave against Medical Advice) before delivery were excluded. A pretested structured questionnaire (socio-demographic profile and history of past and present pregnancy) and checklist of complications (early sign of complications of childbirth) was used for collecting data. Maximum 10 deliveries per day were observed and interviewed by the investigator and the diagnosis was confirmed by related consultants. Each sample was observed and interviewed for three subsequent days including day of delivery.

Data was analysed using licensed software SPSS Version 16.0 and was expressed in percentage, proportion, mean, standard deviation. Association between maternal complications and risk factors were estimated using chi-square test.

Ethical clearance was taken from ethical committee of R.D. Gardi Medical College, Ujjain, MP before starting the study.

RESULT

In present study it was found that out of total participants 59% experienced any kind of complica-

tions during delivery and within 3 days of childbirth. Out of all study participants, 24% had hypertension during childbirth, prevalence of obstructed labour, prolonged labour and sepsis was 13.5% , 8.5% and 7.2% respectively, and other complications like injuries to the birth canals and Rh incompatibility etc were found 5.3% .[Table1]

Participants were equally distributed between rural and urban, and majority (72.5%) were Hindu, 69.5% were reserved, 56.2 % were literate, and most of women were housewives (76.2%), majority belongs to joint family (70.5%). Majority of participants belonged to lower socioeconomic status (72.2%), proportion of Multipara and Primipara was 59.5% and 40.5% respectively.

Complications of childbirth has significant association with religion (p-value = 0.034) and caste (p-value 0.016) of participants. Participants between age18 and 25 years showed more complications.

Complications of childbirth was found to be significantly associated with those who had history of any complaint during their antenatal care visit (ANC visit) (p-value=0.00). Complications during childbirth was more prevalent with those who had complications during ANC visit (50.6%), these participants showed the risk of having childbirth complications 2.28 times.

Table 1- Association of complications with socio-demographic factors

Risk factors	Complication		Total (n=400)	p-value	OR (95% CI)
	Present (n=239)	Absent (n=161)			
Age in years					
18-21	106 (44.4%)	32 (19.9%)	138 (34.5%)	0.00	3.55 (0.78-1.75)
22-25	95 (39.7%)	102 (63.4%)	197 (49.3%)		
26-29	18 (7.5%)	11 (6.8%)	29(7.2%)		
≥ 30	20 (8.4%)	16 (9.9%)	36 (9.0%)		
Residence					
Urban	120 (50.2%)	78 (48.4%)	198 (49.5%)	0.73	1.07 (0.72-1.60)
Rural	119 (49.8%)	83 (51.6%)	202 (50.5%)		
Religion					
Hindu	164 (68.6%)	126 (78.3%)	290 (72.5%)	0.03	0.61 (0.38-0.97)
Non Hindu	75 (31.4%)	35 (21.7%)	110 (27.5%)		
Caste					
Reserved	177 (74.1%)	101 (62.7%)	278 (69.5%)	0.02	1.69 (0.10-0.96)
General	62 (25.9%)	60 (37.3%)	122 (30.5%)		
Education					
Literate	132 (55.2%)	93 (57.8%)	225 (56.3%)	0.62	0.90 (0.60-1.35)
Illiterate	107 (44.8%)	68 (42.2%)	175 (43.7%)		
Occupation					
House wife	178 (74.5%)	127 (78.9%)	303 (75.8%)	0.31	0.78 (0.49-1.26)
Working woman	61 (25.5%)	34 (21.1%)	95 (23.8%)		
Family type					
Joint	161 (67.4%)	121 (75.2%)	282 (70.5%)	0.09	0.68 (0.44-1.97)
Nuclear	78 (32.6%)	40 (24.8%)	118 (29.5%)		
Socio economic status					
Higher SES	19 (7.6%)	14 (8.7%)	33 (8.25%)	0.92	0.90 (0.94-0.72)
Middle SES	47(19.7%)	31 (19.3%)	78 (19.5%)		
Lower SES	173 (72.7%)	116 (72.0%)	289 (72.3%)		

Figures in parenthesis indicate percentage of column total; P-value <0.05 (sig)* result was statistically significant by chi-squared analysis

Table-2 Association of complications with risk factors during pregnancy

Risk factors	Complications		Total	p-value	OR(95% CI)
	Present	Absents			
Complaint in ANC visit					
Present	121 (50.6)	50 (31.1)	171 (42.8)	.00*	2.28 (1.50-3.46)
Absent	118 (49.4)	111 (68.9)	229 (57.2)		
Anaemia during antenatal period					
Present	57 (23.8)	23 (14.3)	80 (20.0)	.02*	1.88 (1.10-3.20)
Absent	182 (76.2)	138 (85.7)	320 (80.0)		
Parity					
Primipara	111 (46.4)	51 (31.7)	162(40.5)	.00*	1.87 (1.23 - 2.84)
Multipara	128 (53.6)	110 (68.3)	238 (59.5)		
Total	239	161	400		
Bad Obstetric History					
Present	121(63.4)	70 (36.6)	191	.00*	2.16 (1.30 -3.59)
Absent	25 (34.2)	48 (65.8)	73		
Total	146	118	264		

Figures in parenthesis indicate percentage of column total. P-value <0.05 (sig)* result was statistically significant by chi-square test.

Participants who had anaemia during ANC visit showed significant association with complications of childbirth (p-value= 0.02). Complications of childbirth was significantly associated with parity (p-value=0.003) and complications were more prevalent in Primipara (46.4%). Chance of developing childbirth complications was 1.87 times higher in Primipara.[Table 2]

Significant association was present between complications of childbirth and bad obstetric history (p-value=0.000).The association was calculated in those participants who had history of previous conception (n=264). Participants who had any bad obstetric history showed more chance of developing the complications (63.4%) and risk was 2.16 times more than the participants without bad obstetric history

DISCUSSION

In present study out of total participants 59% experienced complications during delivery and within 3 days of childbirth. out of all study participants 24% (96) had hypertension during childbirth, prevalence of obstructed and prolonged labour was 13.5% (54) and 8.5% (34) respectively, and 7.2% (29) experienced sepsis, other complications like injuries to the birth canals and Rh incompatibility etc were found 5.3% (21). Result was similar to other study conducted in India, Mousumi G. et al. (2015)¹⁰found that 59% of women had pregnancy complications and 39% had any complications just after delivery. The prevalence of obstructed labour was 6 times higher than present study i.e. 69% of women were reported of experiencing obstructed labour during their delivery and 34.1% had prolonged labour.

Sikder et al¹¹ (2014) found 25% of women were having obstetric complications, 2% with near miss-

es, and 73% (n=30,830) with non-complicated pregnancies which is less than present study . Haemorrhage was identified as the leading complication, reported by 12% of all pregnant women, followed by sepsis 8%. 11% reported obstructed labour and 1% reported eclampsia. These findings are nearly close to what present study found (prevalence of haemorrhage 14.5%) but the prevalence of hypertension was more in present study.

Complications of childbirth had significant association with religion (p-value = 0.034) and caste (p-value 0.016) of participants. Nostrong association with age was foundbut the complications were mostly distributed among age group 18 to 25 years, Saxena et al.¹⁴ (2010) found Teenage girls are twice as likely to die of pregnancy and childbirth related complications as compared to older women. Velankaret et al.¹⁵ (2009) found that the percentage of LBW is more in teenage pregnancy 67%, low socio-economic class 57.7%.

Available literature suggested that risk of getting complications were more during childbirth with advanced maternal age and teenage pregnancies. Our findings suggested that complications of childbirth were higher among women between 18 and 25 year of age groups. This can be possibly due to the reason that majority of the participants were distributed in the age group 18-25yrs. In present study complications during childbirth were more prevalent with those who had complications during ANC visit (50.6%). Complications of childbirth was significantly associated with parity (p-value=0.003) and complications were more prevalent in primipara (46.4%). Similarly Islam et al.¹⁶ (2004) found that complications during antenatal period can result in various complications at the time of delivery. Some of the important findings are haemorrhage during the antenatal period increases the risk of excessive haemorrhage during

delivery, the risk of obstructed labour increases at the risk of excessive abdomen pain observed during antenatal period, prolonged labour appears to be significantly higher for the first pregnancy and pregnancies suffering from abdominal pain during pregnancy tend to have a higher risk of prolonged labour during delivery. In present study complications of childbirth was also associated with bad obstetric history. The association was calculated in those participants who had history of previous conception (n=264). Complications of childbirth was significantly associated with participants who reported anaemic during pregnancy (p-value=0.02). Significant association of complications with anaemia during pregnancy was found in the study conducted by Bora et al.¹⁹ (2014) in northeast India, Anaemia (Hb±<110g/L) was present in 89.6% mothers with 8.3% having severe anaemia. Variation in prevalence of anaemia of this study and present study can be possibly because all the participants were registered for ANC checkups so might have received iron folic acid tablets which prevented them from developing anaemia. Chortatos et al.²⁰ (2015) found that women who experience nausea and vomiting during pregnancy have more chances of getting complications during delivery.

CONCLUSION

The complications of child birth has high prevalence and bad obstetric history, anaemia in pregnancy, history of complaints during ANC visit, parity are the significant risk factors contributing to this situation and needs prompt attention. In spite of various programmes which are running for maternal and child health in India, we are still lagging behind in controlling childbirth related complications.

RECOMMENDATIONS

Various awareness programmes will be needed to improve the utilization of antenatal and postnatal care related services for mother and child. Anaemia can reduce a women's ability to withstand adverse effects of blood loss during and after pregnancy. Prevention, early detection and treatment can reduce the risk of maternal and foetal morbidity and mortality.

LIMITATION: As the present study was hospital based study and sample is not representative of total population hence more studies are required to explore a true prevalence of complications of childbirth and measures to reduce them.

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