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STUDY OF DELIVERY OUTCOME AMONG PREGNANT WOMAN ATTENDING TERTIARY CARE HOSPITAL OF DISTRICT GORAKHPUR: A DESCRIPTIVE STUDY

Community Medicine

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ABSTRACT

INTRODUCTION- Pregnancy is one of the most critical and unique period in a woman's lifecycle. The high number of maternal deaths in some areas of the world reflects inequities in access to health services, and highlights the gap between rich and poor. Almost all maternal deaths (99%) occur in developing countries. More than half of these deaths occur in sub-Saharan Africa and almost one third occur in South Asia. Present study has conducted to find out the socio-biological factors influencing pregnancy outcome.

METHODOLOGY-Present study was conducted in Obstetrics and Gynaecology Department of BRD Medical College Gorakhpur and study subject comprised of 321 recently delivered mothers who were admitted to the hospital with gestational age of >28 weeks and delivered a singleton baby. Exclusion Criteria: Mothers who were admitted before 28 weeks of pregnancy and mothers with multiple pregnancies.

RESULTS- It shows, relationship of mother's age, parity, gestational week at delivery, inter pregnancy interval and history of still birth with outcome of delivery.Out of total 314 mothers delivered in our institutional hospital 271(86.31%) gave live births while the pregnancy of 43 (13.69%) mothers ended into still birth. Maximum number of mothers who gave live girths belonged to the age group of 20-30 years i.e. 198 (73.06%) mothers less than 20 years were 40 (14.76%) and more than 30 were 33 (12.18%), while mothers whose pregnancy ended into still birth, maximum belonged to the age group of <20 years (60.47%) followed by mothers belonging to age group of >30 years, 10 (23.26) and 7 (16.28%) mothers belonged to the age group of 20-30 years. Among the total number of 271 live births maximum number of mothers i.e. 165 (60.89%) were multipara while 74 (27.31%) and 32 (11.81%) were primipara and grand-multipara respectively. Among the total 43 still births maximum number of mothers i.e. 27 (62.79%) were primipara followed by grand-multipara 11 (25.58%) and multipara 5 (11.63%).

KEYWORDS

Delivery outcome, Stillbirth, Sociobiological factors, Hospital, Gorakhpur

INTRODUCTION-

Globally, there has been a decline in the maternal mortality ratio (MMR) by 44% over the last 25 years, from 385 maternal deaths per 100,000 live births in 1990 to an estimated 216 maternal deaths per 100,000 live births in 2015[1]. Approximately 99% of the global maternal deaths in 2015 took place in developing regions, with sub-Saharan Africa alone accounting for roughly 66% followed by Southern Asia. Nigeria and India are the two countries which are estimated to account for over one third of all maternal deaths worldwide in 2015, with an approximate 58,000 maternal deaths (19%) and 45,000 maternal deaths (15%), respectively. The MMR of India is declining; it has come down from 212 in 2007–2009 to 167 in 2011–2013 [2]. However, there is a long way to achieve the target mentioned in the SDG goals. In India, there are wide variations in MMR across different states, ranging from 300 in Assam to 61 in Kerala[2]. Among the northern states, Uttar Pradesh has the highest MMR of 285 maternal deaths per 100,000 live births. Almost 70% of the maternal deaths happen within the age group of 20 to 29 years which is the age group where fertility rates are also very high[2]. It was reported that about 38% of maternal deaths were caused by haemorrhage, 11% due to sepsis and 5% due to obstructed labor[3], majority of which can be prevented if women regularly go for antenatal care (ANC), deliver in an institution and utilize postnatal care services. A cluster randomized trial conducted in an indigenous community of Odisha and Jharkhand states of India found a positive association between presence of SHG and likelihood of newborn survival within first 6 weeks. Uttar Pradesh (UP) is India's fourth largest state and the country's most populated state contributing 16% to the national population. The state comprises 75 districts and 820 development blocks. The population of the state is primarily rural (78%)[4]. Rajiv Gandhi Mahila Vikas Pariyojana (RGMVP) has developed a federated SHG structure in UP. The model comprises an institution that imbibes collective ownership, efficiency, equality, transparency and a strong sense of voluntary spirit. Thus an effort was made in this study to know the influence of some maternal socio-biological factors on pregnancy. To give recommendations, if possible on basis of study findings recently delivered mothers in Obstetrics and Gyanaecology Department of Baba Raghav Das Medical College, Gorakhpur.

METHODOLOGY-

BRD Medical College is a tertiary level hospital which covers almost six and a half lakh population of Gorakhpur region. The patient load is very high as not only the patients from the first tier, second tier and private sector health facilities of Gorakhpur are referred here but the patients from neighboring districts (Maharajganj, Kushinagar, Deoria, Sant Kabir Nagar, Mau) of both U.P. and Bihar are also referred.

All the recently delivered mothers admitted in Obstetrics and Gynecology wards of NEHRU HOSPITAL BRD Medical College, Gorakhpur. A recently delivered mother (within six weeks after termination of pregnancy and childbirth) was study unit. Present descriptive Study was conducted over a period of one year from August 2011 to July 2012.Sample size was calculated using epi info7 software. Population size=2500 (based on hospital records average number of deliveries taking place per year in Obstetrics and Gynecology department of BRD medical college).Expected frequency was taken as16% (based on hospital records the average stillbirth percentage reported by Obstetrics and Gynecology department of BRD medical college).Confidence limit has taken5%,Confidence level 99.The sample size came out to be 312. Thus total 321 mothers were interviewed. The study subject comprised of 321 recently delivered mothers who were admitted to the hospital with gestational age of >28 weeks and delivered a singleton baby. Exclusion Criteria: Mothers who were admitted before 28 weeks of pregnancy and mothers with multiple spregnancies. Collection of information was done by usingsemi structured interview schedule was prepared for data collection. A pilot survey was done taking 10% of sample size and necessary modifications were made before starting the study. Data were collected and entered in Microsoft excel sheet and analysed using SPSS 19.0 and appropriate tests has applied.

Table 1-Distribution of Socio-biological profile of mothers

Variables	Categories	Number	Percentage (%)
Age Of Mother	<20	59	18.38
	20-30	205	63.86
	>30	57	17.75
	Total	321	100.0

Address	Rural	256	79.75
	Urban	65	20.25
	Total	321	100.0
Referral Status	Formal referral	202	62.92
	Self referral	119	37.08
	Total	321	100.0
Religion	Hindu	242	75.38
	Muslim	79	24.62
	Total	321	100.00
Caste	General	89	27.72
	OBC	94	29.28
	SC/ST	138	43.00
	Total	321	100.0

Above table describes some socio-biological factors of mothers. Age of mother's ranged from 16 to 37 years, with mean age 23.89 ±4.80. Majority of mothers belonged to the age group of 20-30 years which constituted 63.86%. 18.38% of the mothers were in their teens and 17.75% were more than 30 years. Mothers were predominantly from rural areas (79.75%). The predominant religion was Hindu (75.38%) and predominant caste was SC/ST (43%). 62.92% of mothers came through a formal referral while remaining were self referred.

Table-2 Distribution of Socio-biological profile of mothers

Variables	Categories	Number	Percentage (%)
Education of mother	Illiterate	105	32.72
	Up to primary	119	37.07
	Up to high school	57	17.75
	Intermediate and above	40	12.46
	Total	321	100.0
Education of father	Illiterate	57	17.77
	Up to primary	78	24.29
	Up to High School	106	33.04
	Intermediate and above	80	25.00
	Total	321	100.0
Occupation of Mother	Housewife	265	82.56
	Agricultural worker/ laborer	41	12.77
	Service / teacher	15	04.67
	Total	321	100.0
SLI	Low	144	44.85
	Medium	151	47.04
	High	26	08.09
	Total	321	100.0
Type of family	Joint	248	77.25
	Nuclear	73	22.75
	Total	321	100.0
Family size*	<5	90	28.03
	5-10	223	69.47
	>10	08	02.50
	Total	321	100.0

Above describes some socio-biological factors such as education of mother and father, occupation of mother, SLI, type of family and family size. 32.72% of mothers were illiterate, 37.07% had education up to primary, 17.75% had education up to primary, while the mothers with intermediate and above education constituted 12.46%. Among the fathers 17.77% were illiterate, while majority of them had education up to high school (33.04%). Majority of mothers were housewives (82.56%), while mothers involved in agricultural work or laborers constituted 12.77%, while mothers in service or teaching job constituted only 4.67%. The standard of living index was 44.85%, 47.04% and 8.09% for low, medium and high respectively. 77.25% of mothers belonged to joint family and the predominant family size was 5-10 members (69.47%).

Table 3 Association of sociobiological factors and outcome of delivery

Socio-biological factors	Outcome of delivery				Total		Result of analysis
	Live birth		Still birth				
	No.	%	No.	%	No.	%	
Mother's Age							
<20	40	14.76	26	60.47	66	21.02	58.53 df=2 p<0.01
20-30	198	73.06	07	16.28	205	65.29	
>30	33	12.18	10	23.26	43	13.69	
Total	271	100.0	43	100.0	314	100.0	
Parity							
Primiparous	74	27.31	27	62.79	101	32.16	36.30 df=2 p<0.01
Multi-Parous	165	60.89	05	11.63	170	54.14	
Grand-Multiparous	32	11.81	11	25.58	43	13.69	
Total	271	100.0	43	100.0	314	100.0	
Gestational Week At Delivery							
<37 Weeks	106	39.11	23	53.49	129	41.06	Fisher's exact=0.048
37-40 Weeks	156	57.56	17	39.53	173	55.10	
>40 Weeks	09	03.32	03	06.98	12	03.82	
Total	271	100.0	43	100.0	314	100.0	
History of still birth							
Present	56	28.42	09	56.25	65	30.52	5.4 df=1 p<0.05
Absent	141	71.57	07	43.75	148	69.48	
Total	197	100.0	16	100.0	213	100.0	
Inter pregnancy interval (in months)							
<18 months	52	26.39	08	50.00	60	28.16	Fisher's exact=0.039
18-24 months	50	25.38	05	31.25	55	25.84	
>24 months	95	48.22	03	18.75	98	46.00	
Total	197	100.0	16	100.0	213	100.0	
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<18 months	52	26.39	08	50.00	60	28.16	
18-24 months	50	25.38	05	31.25	55	25.84	
>24 months	95	48.22	03	18.75	98	46.00	
Total	197	100.0	16	100.0	213	100.0	

Fisher's exact=0.039

Table-3 shows, bivariate analysis of mother's socio-biological factors and outcome of delivery. It shows, relationship of mother's age, parity, gestational week at delivery, inter pregnancy interval and history of still birth with outcome of delivery.Out of total 314 mothers delivered in our institutional hospital 271(86.31%) gave live births while the pregnancy of 43 (13.69%) mothers ended into still birth. Maximum number of mothers who gave live girths belonged to the age group of 20-30 years i.e. 198 (73.06%) mothers less than 20 years were 40 (14.76%) and more than 30 were 33 (12.18%), while mothers whose pregnancy ended into still birth, maximum belonged to the age group of <20 years (60.47%) followed by mothers belonging to age group of >30 years, 10 (23.26) and 7 (16.28%) mothers belonged to the age group of 20-30 years.

Among the total number of 271 live births maximum number of mothers i.e. 165 (60.89%) were multipara while 74 (27.31%) and 32 (11.81%) were primipara and grand-multipara respectively. Among the total 43 still births maximum number of mothers i.e. 27 (62.79%) were primipara followed by grand-multipara 11 (25.58%) and multipara 5 (11.63%).

Out of the total 271 live births majority were term babies 156 (57.56%) while pre-term and post-term were 106 (39.11%) and 9 (3.32%) respectively. Among the still births majority were pre-term 23 (53.49%) while term and post-term were 17 (39.53%) and 3 (6.98%) respectively. Among the mothers who gave live births majority of them had inter pregnancy interval of >24 months 95 (48.22%) while mothers with <18 months and >24 months of inter pregnancy interval were 52 (26.39%) and 50 (25.38%) respectively. Among the mothers who gave still birth majority 8 (50%) had inter pregnancy interval of <18 months. While mothers with inter pregnancy interval of 18-24 months and >24 months were 5 (31.25%) and 3 (18.75%) respectively. of still birth was present in 9 (56.25%) of mothers who gave still birth while mothers who gave live births this history of still birth was present only in 28.42% of them.

DISCUSSION-

Out of total 314 mothers delivered in our institutional hospital 271(86.31%) gave live births while the pregnancy of 43 (13.69%) mothers ended into still birth.This high rate of still birth in tertiary hospitals may be explained by late referrals or admission of the high risk birthing mothers from the community to the hospital. This indicates lack of awareness regarding risk factors of still birth and their grave outcome among the birth attendants and the community.Mothers whose pregnancy ended into still birth, majority belonged to the age group of <20 years (60.47%) followed by mothers belonging to age group of >30 years, 10 (23.26) and 7 (16.28%) mothers belonged to the

age group of 20-30 years. ***Khandait et al, Mukhopadhyaya et al*** also found that still birth rate was high among mothers who were teenagers[5]. ***Rahman et al, McClure et al, Bhattacharya et al*** found statistically significant association between advanced maternal age and still birth[6,7]. ***Bapat et al*** reported that age was not associated with still birth. [8]Among the total 43 still births maximum number of mothers i.e. 27 (62.79%) were primipara followed by grand- multipara 11 (25.58%) and multipara 5 (11.63%). Thus it was observed that among mothers for whom it was first pregnancy and for mothers who had 4 or more children there was high percentage of still birth. There is statistically significant association between parity and still birth which was also found by study done by ***Bhattacharya et al***.[9]

Among the still births majority were pre-term 23 (53.49%) while term and post-term were 17 (39.53%) and 3 (6.98%) respectively. It was observed that statistically significant association exists between prematurity and still birth. Similar findings were observed by ***Vidyadhar et al***.[10]

Among the mothers who gave still birth majority 8 (50%) had inter pregnancy interval of <18 months. While mothers with inter pregnancy interval of 18-24 months and >24 months were 5 (31.25%) and 3 (18.75%) respectively. There exists a statistically significant association between inter pregnancy interval and still birth. ***Rao et al,*** in their study found higher percentage of still birth when inter pregnancy interval was less than one year, while Kumar et al reported that, short inter pregnancy was not associated with still birth. [11]

History of still birth was present in 9 (56.25%) of mothers who gave still birth while mothers who gave live births this history of still birth was present only in 28.42% of them. There was statistically significant association between history of still birth in previous pregnancies and still birth in present pregnancy. Similar finding was observed by ***Bapat et al*** in their studies[8].

It was observed that among the mothers who did not receive ante natal care, 31 (65.96%) had still births. While the mothers who had received ante natal care 12 (4.49%) had still birth. The present study revealed that infrequent or no ANC visits during pregnancy were associated with substantially increased risk of foetal death. These results are in agreement with studies done by ***Korde-Nayak et al***[12]**.**

Majority of mothers whose pregnancy ended into still birth 22 (51.16%) had haemoglobin <7 gm%, while Hb level of 7-10 gm%, 10-11 gm% and >11 gm% was found in 14 (32.56%), 6 (13.95%) and 1 (2.33%) respectively. Thus it was observed that still birth was high among anaemic mothers, and the finding was statistically significant. ***Vidyadhar et al*** found similar finding in their study[13].

Among the mothers who had still births, 46.51% were involved in hard physical activity during pregnancy, 30.23% had light physical activity and 23.26% had moderate physical activity. Thus it was observed that still birth was high among mothers who were doing hard physical activity during pregnancy. This association was statistically significant. ***Vidyadhar et al*** in their study found that mothers doing heavy strenuous work during pregnancy were at higher risk of delivering still birth as compared to mothers who did not do heavy strenuous work during pregnancy[13]. Heavy strenuous work during pregnancy contribute to the onset of preterm labour which results into still birth of premature and low birth weight babies.

The percentage of still birth was high (55.81%) among mothers who were taking less than before followed by 34.88% among those who were taking same diet as before pregnancy. It was very less (9.30%) among those who were taking diet more than before. ***Vidyadhar et al*** found in their study that poor nutritional during pregnancy was a risk factor for still birth[13].

The percentage of mothers whose pregnancy ended into still birth was more 58.14% among those who were consuming tobacco than who were not consuming tobacco (16.61%). Similar finding was reported by ***Gupta PC*** et al, while ***Mishra et al*** reported that there was no effect of tobacco on still birth[14,15]. The percentage of still birth was high 53.49% among mothers who were illiterate, this percentage decreased as level of education of mothers increased. Thus it was observed the percentage of still birth was high among illiterate mothers. This association came out to be statistically significant (P<0.05). These findings corroborate findings from other studies by ***Banerjee et al*** while Kumar et al did not find parental literacy to have any influence on still birth[16]. Out of 43 mothers whose pregnancy ended into still birth 62.79% of mothers were housewives, 27.91% were agricultural workers/laborers and 9.3% were either in service or teaching job.The percentage of still birth was high 39.53 % among mothers who had low standard of living index followed by 34.88% among mothers who had medium standard of living index, while 25.58% of mothers who had still birth had high SLI. There was statistically significant association between economic status and still birth. ***Korde-Nayak et al*** found statistically significant association betw een economic status and still birth.[12,] Low family income acts as hindering factor for early decision to seek care and thereby delay to receive care.

Conclusion- A number of socio-biological factors such as age of mother, parity, gestational week at delivery, history of stillbirth, inter pregnancy interval of less than 18 months, hard physical activity during pregnancy, inadequate diet, history of tobacco consumption, education of mother, occupation of mother, low SLI, no or inadequate ANC, severe anemia were found to be significantly related to stillbirth.

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