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Prevalence and Determinants of Maternal Morbidity among Women in Rural Population of A West Uttar Pradesh District

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Abstract

Pregnancy outcomes are being impacted by maternal morbidities related to the prenatal, intranatal and postnatal period. Maternal morbidities are health condition attributed to and/or aggravated by pregnancy and childbirth and has negative influence on women's quality of life and can lead to maternal mortality also if not taken care early. Many of these morbidities can be avoided. Enhancing maternal health and lowering maternal mortality rates can be achieved by using a variety of factors that effect these morbidities. The government has numerous initiatives and regulations aimed at enhancing maternal health., yet, factors such as a woman's education, her socioeconomic status, cultural obstacles and her empowerment are regulating the health seeking behavior of a woman especially on rural areas. To study the prevalence and determinants of maternal morbidity among women in rural population of a West Uttar Pradesh district. Cross sectional study was conducted in west Uttar Pradesh district. 350 women were selected by 10 cluster sampling. Data analysis was done with Microsoft office Excel and SPSS 20. Chi square test was applied. 216 (61.71%) women suffered from one or other type of maternal morbidity during their pregnancy, childbirth or puerperium, 58.25% ,16.7% and 25.65% women had antenatal, intranatal and postnatal morbidities respectively. Maternal morbidity is a major factor affecting women's quality of life in rural population. Raising women's educational standing, providing appropriate prenatal care, spacing out pregnancies by more than three years and being aware of the warning signals of pregnancy are all factors that can help minimize maternal morbidity and mortality.

INTRODUCTION

An essential indicator of maternal health is maternal mortality. Over the past 25 years, there has been a nearly 44% decrease in the global maternal mortality ratio (MMR), with India being responsible for 15% of all maternal fatalities worldwide^[1,2]. Over half a million women pass away every year as a consequence of hazards arising from childbirth either before or after. Nearly the vast majority of these fatalities take place in nations that are developing and roughly most of them are preventable. Pregnancy and childbirth complications constitute the biggest causes of mortality and morbidity among women of reproductive age in nations with limited resources. It has been suggested that for each woman who dies, at least 15 more people suffer from significant illnesses. As a result of short-or long-term impairment, an estimated 5-7 million women experience a markedly reduced quality of life. The World Health Organization defines maternal morbidity as any health condition attributed to and/or aggravated by pregnancy and childbirth that has negative outcomes to the woman's well-being^[4]. According to one study in India, the incidence of maternal morbidity was 52.6%, 17.7% during labour and 42.9% during puerperium.⁵ Maternal morbidity and mortality can be decreased with early intervention, careful monitoring and early referral to a tertiary care facility. In obstetrics, morbidity is categorized as Direct morbidity and indirect morbidity. Direct morbidity causes include eclampsia, sepsis, ectopic pregnancy, ruptured uterus, obstructed labor and PPH. Malaria, hepatitis, TB and anemia are examples of indirect morbidity. Many pregnant women face serious morbidities rather than dying from pregnancy-related reasons. The main causes of deterioration among women aged 15-44 in underdeveloped nations are complications linked to pregnancy and childbirth. The World Development Report calculated that maternal causes account for 18% of these women's disease burden^[6]. Determining the causes of maternal morbidity and mortality is a legitimate scientific endeavor in and of itself, but it is especially pertinent to any effort to enhance mother health. It is feasible to generate therapies, look for ways to avoid illness, recognize high-risk people and groups, and evaluate the health effects of changes in the biological, physical, or social environment by understanding the determinants of ill-health and their interrelationships. However, it's also critical to understand that a multidisciplinary approach to researching and treating health issues is necessary and that it is not only the domain of biomedical competence that can detect and intervene against particular factors of maternal ill-health^[7]. During the index pregnancy and delivery, 66% of the women

experienced at least one complication; the most frequent ones were pre-eclamptic toxemia, protracted labor, fever and hemorrhage. It was discovered that women's education, parity and awareness of obstetric difficulties were related to their reporting of complications^[8].

MATERIALS AND METHODS

Between June 2023 and November 2023, a cross-sectional study was carried out in the rural and semi-urban blocks of west Uttar Pradesh District.

Sample size is calculated by formula $n = \frac{4pq}{l^2}$,

Where, n= required sample size p=proportion or prevalence of interest q=100-p l=allowable error According to Lwanga and Lemeshow's WHO practical handbook on sample size determination in health studies, an expected p was calculated as 50%.9

$q = 100 - 50 = 50$

$l = 6\%$

Then, sample size would be 278. Non-response rate/loss of sample = 20% of sample size. Sample size calculated was 334, Round figure was produced by selecting 350 study individuals.

Ten clusters were chosen using the Cluster Sampling approach and thirty-five women who had given birth during previous three year willing to participate and after written consent were interviewed from each cluster from the blocks. Pretested structured questionnaire were filled and data was collected.

The application used for data entry was Microsoft Office Excel 2007.

Medcalc 10.4.8.0., SPSS version 20 and Microsoft Office Excel 2007 were used for the analysis. Chi square analysis was used to examine the correlations.

RESULT AND DISCUSSIONS

Table 1 demonstrates that the majority of women with prenatal morbidity (24.28%) stated that they felt fatigued. Hyperemesis Gravidarum (2.57%), leg swelling (2.85%), hypertensive disorder (2.85%), bleeding per vaginum (2.57%), headache (1.14%), blurred vision (0.85%), eclampsia (1.14%) and fever with vaginal discharge (1.42%), were the other morbidities identified.

Table 2 indicates that among the women who experienced intrapartum morbidity, the most common causes were oligohydramnios (1.42%), prolonged labor (0.85%), premature rupture of membrane (1.42%), malpresentation (0.85%) and fetal distress (1.42%). Fewer women complained about MAS (1.14%), Cord Prolapse (0.28%) and Polyhydramnios (0.85%). Six females experienced Postpartum hemorrhage.

Table 3 demonstrates that among the women with postpartum morbidities, the most prevalent

Table 1: Distribution of women according to Morbidity during Antenatal period of their last pregnancy

Type of morbidity	Prevalence of total sample size
Weakness	85 (24.28%)
Hyperemesis Gravidarum	9(2.57%)
Swelling of legs	10(2.85%)
Hypertensive disorder(Pregnancy Induced Hypertension)	10(2.85%)
Bleeding p/v	9(2.57%)
Headache	4(1.14%)
Blurring of vision	3(0.85%)
Eclampsia	4(1.14%)
Fever with vaginal discharge	5 (1.42%)

Table 2: Distribution of women according to presence of morbidity during their Intranatal period of last delivery

Type of morbidity	Prevalence of total sample size
Prolonged labour	3(0.85%)
Premature rupture of membrane	5(1.42%)
Oligohydramnios	5 (1.42%)
Malpresentation	3(0.85%)
Fetal distress	5(1.42%)
Meconium aspiration syndrome (MAS)	4(1.14%)
Polyhydramnios	3(0.85%)
Cord prolapsed	1(0.28%)
Postpartum Hemorrhage	6(1.71%)
Others	2(0.57%)

Table 3: Distribution of women according to morbidity during post natal period of their last delivery

Type of morbidity	Prevalence of total sample size
Backache	25(7.14%)
Pain in stitches	8(4.28%)
Infection of stitches(episiotomy/CS)	6(1.71%)
Mastitis	5(1.42%)
Weakness	8(2.28%)
Delayed lactation or milk output	6(1.71%)
PPH	3(0.85%)
Septicemia	1(0.28%)
Eclampsia	1(0.28%)
Others	6(1.71%)

Table 4: Distribution of women according to Present morbidity due to any complication during last delivery

Morbidity	Prevalence of total sample size
Backache	35(10%)
Pain in stitches	8(2.28%)
Weakness	10(2.85%)
Fistula	1(0.28%)
Incontinence	2(0.57%)
Others	2(0.57%)

Table 5: Association between various variables and presence of maternal morbidity

Variables	Any morbidity YES	Any morbidity NO	p-value
Knowledge of danger signs			p=0.0072
Yes	84(24%)	57(16.28%)	
No	112(32%)	62(17.71%)	
Prompted	20(5.71%)	15(4.28%)	
Parity			P=0.430
1	99(28.28%)	54(15.42%)	
2	56(16%)	44(12.57%)	
3	36(10.28%)	24(6.85%)	
>/=4	25(7.14%)	12(3.42%)	
Birth intervals(years)			P=0.0163
<3	144(41.14%)	79(22.57%)	
>3	72(20.57%)	55(15.71%)	
Number of ANC taken			P<0.001
No ANC	2(0.57%)	0	
<3	200(57.14%)	124(35.42%)	
>3	14(14%)	10(2.85%)	
Education			P=0.0148
Illiterate	136(38.85%)	41(11.71%)	
Primary	66(18.85%)	27(7.14%)	
Secondary	21(6%)	19(5.42%)	
Higher secondary	3(0.85%)	5(1.42%)	
Graduate and above	6(1.71%)	10(2.85%)	
Occupation			P=0.394
Housewife	15(4.28%)	6(1.71%)	
Labourer	190(54.28%)	119(34%)	
Service	3(0.85%)	2(0.57%)	
Others	8(2.28%)	7(2%)	
Socio economic class			P=0.4306
Lower	173(49.42%)	102(29.14%)	
Middle	40(11.42%)	30(8.57%)	
Upper	3(0.85%)	2(0.57%)	
Place of delivery			P=4.024
Govt. Hospital	121(34.57%)	65(18.57%)	
Private hospital	60(17.14%)	51(14.57%)	
Home	22(6.28%)	10(2.85%)	
Quack	13(3.71%)	8(2.28%)	

morbidities were back pain (7.14%), stitches discomfort (4.28%), stitches infected (1.71%), mastitis (1.42%) and delayed milk production (1.71%). Three women experienced postpartum hemorrhage, although only one had septicemia and one had eclampsia. Six (1.71%) of the ladies experienced various issues, such as fever, diarrhea and tear bleeding.

Table 4 represents that 10 (2.85%) women complained of weakness, 2.28% of women complained of stitch pain and 10% women complained of backache, with possible causes including anemia from the previous pregnancy or a shorter birth interval. Two individual complained of incontinence while one had a fistula issue.

Table 5 indicates that the women who were more aware of the warning signs of pregnancy reported lower rates of maternal morbidity (32%) compared to those who are unaware of the danger signs (24%). There is a statistically significant difference. ($p < 0.001$) While there is no statistically significant difference between maternal morbidity and parity, maternal morbidity is higher in both Primipara and multipara populations. Maternal morbidity was higher in women with birth intervals of less than three years (41.14%) than in those with intervals greater than three years (20.57%). At $p < 0.05$, this difference is statistically significant. Two patients had not taken ANC visits. Women with <three ANC visits and those with >three ANC visits had morbidity rates of 57.14% and 4%, respectively. According to statistics, this difference is quite significant ($p < 0.001$). Compared to women in other occupations, the percentage of morbidity among labourers was greater at 54.28%. The relationship between maternal morbidity and the kind of profession was not statistically significant. Maternal morbidity was found in all socioeconomic classes, with rates in the lower, medium and upper socioeconomic classes being 49.42%, 11.42%, and 0.85%, respectively. Literate people have positive correlation with women's maternal morbidity. The morbidity rate was higher in illiterate people (38.85%) than in literate people (27.41%). Additionally, there is a statistically significant difference ($p < 0.05$). The prevalence of morbidity among women was nearly comparable across all delivery places: 34.57% in government hospitals, 17.14% in private hospitals, 6.28% at home and 3.71 % in quacks. No statistically significant variation was found.

Studying various factors on a regular basis is necessary since the determinants of maternal morbidity vary over time due to changes in policy, the health care delivery system and lifestyle choices. Many factors and their impact on maternal morbidity have also been disclosed by the current investigation. The average age of the research participants was 25.34 years. Of them, 52% were in their 20s and 30s. 25.99%

of women have completed their primary education. Merely 4.56 % of the population held a degree. 73.34% were Hindus and remaining were muslims. Prasad's classification revealed that 78.56% of women belonged to lowest socioeconomic classes. In their most recent pregnancy, 57.1% of the women had used IFA tablets for over 100 days and 98.9% of the women had taken two doses of TT before becoming pregnant. Maternal morbidity was seen in 32% patients who were unaware of danger signs.

According to the current study, out of all the women, 216 (61.71%) had some form of maternal morbidity throughout their pregnancy, delivery, or puerperium, and the remaining 134 (38.28%) had none at all. Of the women who had any sort of morbidity, 16.7% experienced it during the intranatal phase, 58.25% suffered it during the prenatal phase, and 25.65 % had it during the postnatal period. According to a Measham and Rochat 1987 investigation, which was referenced in Bhatia 1993, for every maternal death in impoverished nations, an additional 10-15 women experience severe impairments^[10]. It has been estimated that there are 8.25 million maternal morbidities globally each year based on some of these estimations Walsh^[11]. According to calculations made by others, there are more than 100 acute morbid episodes for each maternal mortality, for a total of 62 million morbidities worldwide each year Koblinsky^[12]. Around 15% of pregnancies worldwide are thought to be at risk of problems (UNICEF, 2009). About 47% of the women in the study area in a research by Vijay M. Sarode (2010) said they experienced at least one pregnancy-related issue. In their study, Agarwal and Sidharth (2010) discovered that out of the 312 moms, 52 (16.7%) had a delivery-related problem that was reported earlier., of the 52 mothers, 33 (63.5%) had a trained birth attendant deliver their child^[14]. NFHS III (2005-2006) reported that 58.7% of pregnant women between the ages of 15 and 49 had anemia. (Hb <12 g/dl). With Hb 10-11.9 g/dl, mild anemia affected 25.8% of women, whereas 30.6% had moderate anemia and 2.2% had severe anemia with Hb <7 g/dl. In their study, S. Sreelatha *et al.* (2002) found that 22.4% of participants had mild anemia, with hemoglobin values between 10 and 10.99, while 29.5% of respondents had hemoglobin <11.16 According to Vijay M. Sirode's study from 2010, the most common prenatal issues were excessive tiredness (48 percent., NFHS-2: 49.1 percent), followed by vomiting that was excessive (42 percent)., leg swelling (31 percent., NFHS-2: 35.9 percent)., pain in the abdomen (21 percent)., white discharge (15 percent)., vision impairment (10 percent., NFHS-2: 12.1 percent)., vaginal bleeding (9 percent., NFHS-2: 3.5 percent)., convulsion not related to fever (7 percent., NFHS-2 and RCH: 6.3 percent)., night blindness (6 percent) and

anemia (4 percent., 16 percent)^[15].

According to a Bang RA study from 2004, prolonged labor (10.1%), prolonged rupture of the membranes (5.7%), aberrant presentation (4.0%) and primary postpartum hemorrhage (3.2%) were the most prevalent intrapartum morbidities^[17]. Just a small percentage of the women had malpresentation and convulsions and 10% reported having their placenta retained. There were, on average, 0.6 morbid problems connected to delivery for each woman. Breast issues (18.4%), subsequent postpartum hemorrhage (15.2%), puerperal vaginal infections (10.2%) and sleeplessness (7.4%) were among the postpartum morbidities reported in a research by Bang^[17]. S. Patra and others (2008) According to their survey, 74% of participants reported having at least one morbidity. Weakness, lower abdomen pain, perineal pain, irregular vaginal discharge, elevated fever, breast issues, excessive vaginal bleeding, etc. were among the common issues mentioned^[18]. According to a study by Bruce FC *et al.* (2008), 50% of women experienced at least one problem overall, with prevalence and kind of morbidity varying depending on the pregnancy result. Anemia (9.3%), UTIs (9.0%), mental health issues (9.0%), hypertension abnormalities (8.5%) and pelvic and perineal injuries (7.0%) were the most frequent consequences^[19]. Women with lower socioeconomic position had higher rates of morbidity in a research by Patra^[18]. According to a study by Koki Gilbert *et al.* (2010), women with lower socioeconomic status have a higher mortality rate than women with higher socioeconomic status^[20]. G. Rama Padma (2004) found similar results, indicating an inverse relationship between a woman's educational attainment and maternal morbidity. Another study carried out in Dhaka's impoverished neighborhoods revealed similar results: there were no appreciable variations in major problems connected to childbirth between home and elective facility deliveries. The place of delivery did not significantly affect postpartum morbidity ($p=0.58$). According to Jean's (2008) study, which took place in a Nairobi slum, women who gave birth at a health facility experienced at least one delivery-related complication in over 75% of cases compared to roughly 66% in cases where deliveries occurred at unsuitable facilities ($p<0.01$). 21 Similar results were also observed in a study by Patra S. *et al.* (2008), which showed that mothers with a birth interval of less than three years had increased maternal morbidity^[18]. According to a study by Agustin *et al.* (2000), women who conceived six months after giving birth or with an estimated 14-month gap between pregnancies had a 2.5-fold increased risk of maternal death and a 70% increased risk of premature rupture of the membranes and third trimester bleeding (compared to women with 2.5-3

years between births)^[22]. Patra S. (2008) found in her study that women with parity more than four had higher rates of morbidity^[18]. According to a study by Agarwal and Sidhharth (2010), women were 1.62 times more likely to report maternal morbidity if they were aware of more than three danger signs, compared to 0.87 times higher likelihood if they were aware of just one or two.

CONCLUSION

Our study concluded that maternal morbidity is a major factor affecting women's quality of life in rural population. Raising women's educational standing, providing appropriate prenatal care, spacing out pregnancies by >three years and being aware of the warning signals of pregnancy are all factors that can help minimize maternal morbidity and mortality. Therefore, improving these factors will contribute to a reduction in maternal morbidities. Reduced maternal mortality as well as a decline in newborn and infant mortality are the ultimate results of improved pregnancy outcomes.

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