

A Descriptive Study of Risk Factors Associated with Postpartum Complications among Delivered Women at SMS Medical College, Jaipur

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Received: 25-08-2024 / Revised: 23-09-2024 / Accepted: 25-10-2024

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Conflict of interest: Nil

Abstract:

Background: To assess the risk factors associated with postpartum complications among delivered women at SMS Medical College, Jaipur.

Methods: Present study entitled “A Descriptive study of risk factors associated with postpartum complications among delivered women at SMS Medical College, Jaipur” conducted in the Department of Obstetrics and Gynaecology.

Results: Most common complication of risk associated in delivered women is haemorrhage (24%) followed by 18% had wound gapping, 14% had risk of developing headache, 10% may develop eclampsia and discharge from stitch line, 7% had chances of urinary tract infection, 4% may develop sepsis and haematoma at stitch line each, 3% had secondary post-partum haemorrhage and 2% each has anaemia, abscess at stitch line and uterine inversion. In majority (35%) women having post-partum complication had previous caesarean section followed by 9% had obesity, 7% had Premature rupture of membranes, 5% had Antepartum Haemorrhage, 4% had Pre-Eclampsia, 3% had retained products of conception, 2% each had Hypertensive Disorders in Pregnancy with fetoplacental Insufficiency, Placenta Previa, Pre-Term Labour, Third Trimester Urinary tract infections and Twin Pregnancy with Premature rupture of membranes respectively.

Conclusion: Postpartum complications are influenced by both personal and healthcare facility factors. Women with pre-existing medical conditions, obstetric issues (such as haemorrhage, hypertensive disorders, and infections), non-obstetric health problems, or limited awareness of potential pregnancy complications face higher risks of maternal health issues after delivery. To reduce these risks, it's crucial to promote antenatal care utilization, especially for women who have had multiple pregnancies. This approach can enhance understanding of potential obstetric complications, encourage birth preparedness, and improve readiness for potential issues. Ultimately, this strategy aims to reduce delays in seeking care and facilitate earlier diagnosis of complications and treatment

Keywords: PPH, Complication, Risk factor.

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Introduction

Childbirth is a complex process with inter relationship between physiological and psychological processes influenced by social, environmental, and organizational context. [1] The postpartum period is a time that starts one hour after delivery and extends up to 42 complete days postpartum. It is a critical phase in the lives of mothers and new-borns. [2] During this period, pregnancy-related anatomic and physiologic changes that occurs are gradually restored to non-gravid status. The clinical spectrum of postpartum complications is broad, complex and greatly influenced by delivery method. [3]

It is estimated in a study by the CDC using data from 14 maternal mortality review committees

(2008–2017) stated that 37% of maternal deaths occur within 42 days after delivery and an additional 23.6% occur 43 days to 1 year after delivery. [4] Thus, postpartum period is the time of highest risk for maternal death, so quality postpartum care is critical. [5] Postpartum complications can vary widely in terms of prevalence and severity. It ranges from relatively self-limiting to life-threatening conditions. e.g. - postpartum Haemorrhage (Uterine atony, retained product of conception, trauma of the lower portion of the genital tract, coagulopathy), puerperal sepsis, sub-involution of uterus, urinary tract infections, mastitis, and breast abscesses being notable concerns. [6]

Other complications like pain and discomfort are frequently reported, including headaches, pelvic pain, and symptomatic haemorrhoids. Mental health issues often arise, with postpartum blues anxiety, depression, post-traumatic stress disorder, and psychoses being significant concerns.

Functional problems such as breastfeeding difficulties, urinary incontinence, constipation, and sleep disorders are also common. Additionally, complications such as deep vein thrombosis and postpartum anaemia can occur, though they tend to be less frequent compared to the other issues listed.

Population-wide increase in maternal mortality are difficult to attribute solely to trends in individual-level factors. Instead, understanding how population-level factors change and relate to maternal mortality over time may provide insights into potentially effective public health and health policy responses. Knowledge of post-partum risk factors is an important first step for appropriate management and timely referral. Increasing knowledge of risk factors in delivered women would reduce delay in seeking care and improve early detection of complications. Early screening is expected to reduce maternal mortality rates. The purpose of this research, is to analyse the high-risk factors and complications associated with postpartum maternal mortality. Thus, this study aimed to identify risk factors and complication in delivered women.

Material and Methods

Type of Study: Descriptive type of Observational Study.

Study Design: Prospective Study. Place of Study: A descriptive study of risk factors associated with postpartum complications among delivered women at SMS Medical college, Jaipur.

Duration of study: From November 2022 to one year or till the desired sample is achieved whichever is earlier. Two months for data compilation and analysis. Institutional Review Board and Ethical Committee Approval: This were taken prior to the study

Study Universe: All pregnant women who were deliver at Department of Obstetrics and Gynaecology, SMS Medical College, Jaipur.

Inclusion Criteria:

- Women in postpartum period up to 42 days of delivery with postpartum complications.
- Women willing to participate in the study and ready to give informed and written consent.
- Women who are not part of any other study.

Exclusion Criteria

- Referred women with postpartum complications.

Methodology

A prospective observational study of 100 women who were delivered at SMS Medical College, Jaipur having postpartum complications from November 2022 to one year or till the desired sample size is achieved, were recruited. Two months for data compilation and analysis were required. Written and informed consent were taken from the Women. After taking consent the detailed proforma including present obstetric history, past history, treatment of infertility, high risk factors (like hypertensive disorder of pregnancy, diabetes mellitus, frequency of antenatal visits, viral illness, sociodemographic factors, BMI, maternal age.) mode of delivery, postpartum complications (eg. Postpartum haemorrhage, postpartum anaemia, puerperal sepsis, postpartum eclampsia, lower segment caesarean section/episiotomy wound gaping, vaginal wall hematoma, urinary tract infections, breast engorgement, mastitis, breast abscess, postpartum psychosis/depression, uterine inversion, pelvic pain, sexual dysfunction, vesicovaginal fistula, renal failure). Investigations (CBC, LFT, RFT, blood sugar, coagulation profile, ECG, and other investigations in accordance with postpartum complications were done. Duration of Hospital stay were noted. Women were followed till discharge. Data thus obtained were evaluated.

Statistical Analysis

Continuous variables were summarized as mean and standard deviation while nominal/categorical variables were expressed as percentages. Unpaired T-test, one-way ANOVA test and Pearson correlation coefficient were used for analysis of continuous variables. Fischer Exact test or chi-square test were used for nominal/categorical variables. P value < 0.05 were taken as significant. Med calc 16.4 version software were used for all statistical calculations.

Observations and Results

Table: 1 General Characteristics

Age in years	26.8±3.79
Hindu : Muslim	72 :28
SES (Lower : Middle : Upper)	56:37:7
Literate : Illiterate	84 : 16
Gestational period (Preterm : Term :Post term)	25:66:9
Gravida (Primigravida : Multigravida)	42 : 58

Parity (Primiparous : Multiparous)	78 : 22
Vaginal delivery : Caesarean section	64 : 36

Table: 2 Distribution of delivered women according to post-partum complications.

Postpartum Complications	Number	Percentage
Haemorrhage	24	24.00%
Wound Gapping	18	18.00%
Headache	14	14.00%
Stitch Line Discharge	10	10.00%
Eclampsia	10	10.00%
Urinary Tract Infection	7	7.00%
Sepsis	4	4.00%
Stitch Line Haematoma	4	4.00%
Secondary PPH	3	3.00%
Anaemia	2	2.00%
Uterine Inversion	2	2.00%
Stitch Line Abscess	2	2.00%

Most common complication of risk associated in delivered women is haemorrhage (24%) followed by 18% had wound gapping, 14% had risk of developing headache, 10% may develop eclampsia and discharge from stitch line, 7% had chances of

urinary tract infection, 4% may develop sepsis and haematoma at stitch line each, 3% had secondary post-partum haemorrhage and 2% each has anaemia, abscess at stitch line and uterine inversion.

Table: 3. Distribution of delivered women according to risk factors associated with post-partum complication.

Risk factor	Number	Percentage
Previous LSCS	35	35.00%
Anaemia	15	15.00%
Hypertension	12	12.00%
Obesity	9	9.00%
PROM	7	7.00%
Antepartum Haemorrhage	5	5.00%
Pre-Eclampsia	4	4.00%
HDP with Fetoplacental Insufficiency	2	2.00%
Placenta Previa	2	2.00%
Pre-Term Labour	2	2.00%
Third Trimester UTI	2	2.00%
Twin Pregnancy With PROM	2	2.00%

In majority (35%) women having post-partum complication had previous caesarean section followed by 9% had obesity, 7% had Premature rupture of membranes, 5% had Antepartum Haemorrhage, 4% had Pre-Eclampsia, 3% had retained products of conception, 2% each had Hypertensive Disorders in Pregnancy with fetoplacental Insufficiency, Placenta Previa, Pre-Term Labour, Third Trimester Urinary tract infections and Twin Pregnancy with Premature rupture of membranes respectively.

Discussion

Present study evaluated different type of postpartum complication and associated risk factors that leads to these postpartum complications'. Here, we found that along with sociodemographic

characteristics (like age, education, socio-economic status, gravida, parity and mode of delivery).

Other factors like previous caesarean section followed by obesity, PROM, Antepartum Haemorrhage, Pre-Eclampsia, RPOC, Fetoplacental Insufficiency with HDP, Placenta Previa, Pre-Term Labour, Third Trimester UTI and Twin Pregnancy with PROM significantly affects the post-partum complications. Most common complication associated in delivered women was haemorrhage (24%) followed by 18% had wound gapping, 14% had headache, 10% developed eclampsia and discharge from stitch line, 7% had chances of urinary tract infection, 4% may develop sepsis and haematoma at stitch line each, 3% had secondary post-partum haemorrhage and 2% each had postpartum anaemia, abscess at stitch line and uterine inversion. Comparable to our results Paul

and Chellan [7] in their study found that Majority of them reported lower abdominal pain (18.5 per cent) followed by high fever (14.3 per cent), severe headache (12.0 per cent), excessive bleeding, foul smelling vaginal discharge, and convulsions. Bishwa et al [30] reported that postpartum fever 14 (58.3%) was the most common postpartum condition observed among women with puerperal sepsis. About 7 (29.2%) women had caesarean site infection. The remaining 2 (8.3%) and 1 (4.2%) women with puerperal sepsis had episiotomy site and urinary tract infection, respectively. Hundal et al [8] reported that most common postpartum complication after immediate discharge were abdominal pain (21.5%), wound-related issues (12.6%), and urinary issues etc. Tuyishime et al⁹ reported that most common cause of post vaginal complications was PPH (85.6%) due to atony (33%), tear (32%), and retained placenta (16%). On the other hand, the caesarean section (CS) complications were mainly due to peritonitis (63.8%) and PPH (30.3%).

Risk factors associated with post-partum headache includes previous LSCS and hypertensive disorders with obesity, pre-eclampsia, hypertensive disorders with Discussion 45 anaemia and Fetoplacental Insufficiency with HDP. Reason for stitch line discharge after delivery includes previous LSCS had PROM, Factors associated with post-partum eclampsia are Hypertension and previous LSCS, factors associated with post-partum UTI has previous LSCS with PROM, Factors associated with post-partum Wound Gapping includes HDP with Obesity, had PROM, had Pre-Eclampsia With HBSAG positive, Preterm Labour, Hypertension and Previous LSCS and 5.56% had APH with Anaemia and Factors associated with post-partum stitch line Haematoma are anaemia and hypertension during pregnancy. And, also Women having sepsis after delivery has previous LSCS and has 3rd trimester UTI, Women having post-partum Uterine Inversion all have previous LSCS with short ICP, Women having post-partum anaemia had also antepartum Haemorrhage, Women having secondary PPH had RPOC and Women who develop postpartum stitch line abscess have pre.2 nvd with LSCS with prom. Consistent to our results Ngonzi et al [9] observed that caesarean delivery was the strongest independent risk factor for developing endometritis or a composite postpartum infection outcome. Leth et al [10] observed that postpartum UTI incidence in some Europeans found to be 3% after caesarean delivery and vaginal delivery. According to Kankuri et al [11] study that postpartum infection is three times more likely to occur after caesarean section than after vaginal delivery. Similarly, Corrêa Pinto et al [12] also reported that Most infections in women undergoing vaginal delivery land-up in caesarean sections performed after the mother had already gone into

labor. Moulton et al [13] study is also consistent with our study results that higher risk of infection was related to emergency caesarean sections than in scheduled ones. Mascarello et al [14] observed that Among early complications, caesarean delivery was associated with a higher risk of post-partum infection, urinary tract infection, anesthetic complications and headache and a lower risk of anaemia and hemorrhoids. Among late complications, caesarean delivery was associated with a lower risk of urinary incontinence. Other studies conducted by Axelssons et al²⁹ and Liu et al [15] also found a higher risk of postpartum infection in women with caesarean sections, as expected in any surgical procedure. Bishwa et al³⁰ reported that PROM during pregnancy had 3.25 times the risk of developing puerperal sepsis in postnatal women compared to the counterpart. Study conducted by El-Mahally et al [16] suggest that anaemia and Eclampsia were associated with maternal sepsis. Sebire et al [17] found that post-partum wound infection was more common among overweight and obese women. Axelssons et al [18] also reported that wound infection was more common among underweight women compared with normal-weight women after vaginal delivery. Higher BMI also seemed to have a non-significant protective effect against wound infections after vaginal delivery.

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